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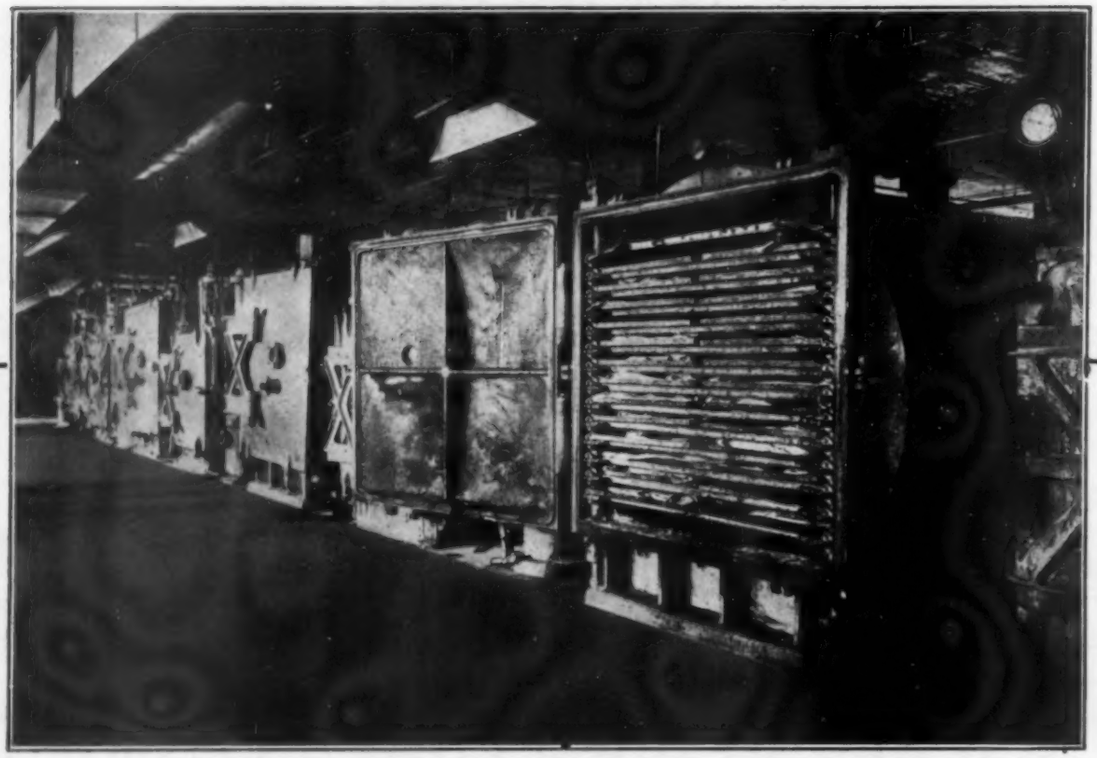

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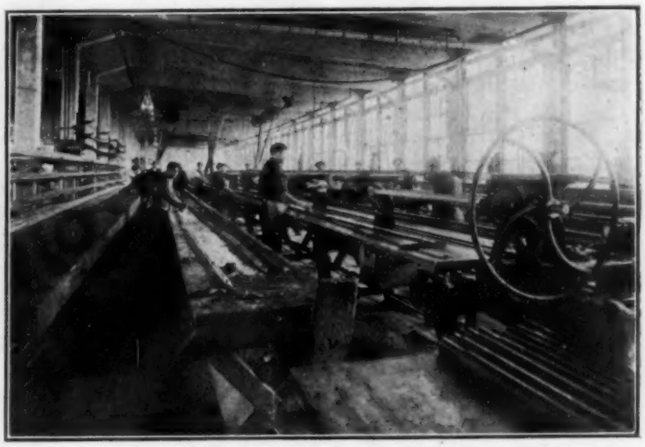
The Manufacture of Rubber Hose

The manufacture of hose is one of the most important branches of the rubber industry. To treat of this line of manufacture is to take up a very complicated subject, for the reason that there is practically no limit to the kinds and types of hose that are manufactured, some in large, some in small volume only, by the several rubber manufacturers making these lines of mechanical goods.

The manufacture of hose, due to the variety of sizes and kinds of hose that have to be produced to constitute a complete line, requires costly equipment and comparatively large floor spaces. It is, therefore, a line that is usually reserved to large manufacturers or comparatively large ones.

WRAPPING SMALL HOSE



LARGE HOSE MACHINE

Making hose is not one of the most difficult of rubber manufacturing problems, but it is nevertheless a very interesting line of work, and the problems created by new applications of hose that are coming up every day, and by competition, make it necessary for the successful hose manufacturer to employ the best chemical brains and practical skill available in the rubber industry.

Great Variety of Hose in Demand

As before said, there is practically no limit to the kinds of hose that are in demand. To bear out this statement it is sufficient to mention some of the most common varieties, which are: water hose, steam hose, air hose, air-brake hose, air drill hose, steam drill hose, brewers' hose, car heating hose, gas hose, gasoline hose, hot water hose, hot oil hose, chemical hose, pneumatic hose, suction hose, dredging sleeves, signal hose, wine hose, tanners' hose, steam boiler wash-out hose, twin hose, engine and tender connection hose, acid hose, hard rubber hose, spiral spring, spiral flat and round steel wire suction hose, fire engine suction hose, oil suction hose, suction and discharge hose, excavating suction hose, cotton jacket fire hose, rubber fire hose, single body fire hose, cotton mill hose, cotton garden hose, tank hose, linen fire hose, hydraulic hose, water hose etc. etc.

Rubber hose is regularly made in fifty-foot lengths, with other lengths not exceeding fifty feet available on request, but continuous length braided hose is also made by many manufacturers and has a steady demand. Continuous length hose is made in lengths up to and including 500 feet.

Three kinds of water hose are commonly made: conducting hose, which is a 2-ply light flexible hose for conducting water under slight pressure; the larger sizes of this type of hose being used as tank hose by the railroads; hydrant hose, which a 3-ply hose of medium strength and is intended for garden, lawn, and force pump uses, side-walk and deck washing, street and lawn sprinkling, and similar purposes where only a moderate water pressure is used; engine hose, a 4-ply product used where good, strong, reliable hose is required. The latter is made to withstand, when new, from 100 to 200 pounds of pressure to the square inch. This same type of hose is also regularly made with 5 and 6 plies of material, heavier construction being obtainable on special order only.

Water hose varies in internal diameter from ½ to 10 inches.

Steam Hose

Few usages that can be made of rubber hose is that of conducting steam. It is not a difficult matter to make the hose strong enough to withstand the pressure, but the intense heat generated by the steam hardens the rubber, causing it to lose its life, elasticity, and adhesiveness. Rubber hose is cured by steam at 250 to 265 degrees F. and it is easy to grasp that any temperature in excess of this, after a time, has a tendency to over-cure and injure the hose, and consequently cause it to deteriorate. For this reason, steam hose stock is compounded to withstand the hardening action of steam for the longest possible time. Some grades of steam hose

are built with both an internal and an external ply of asbestos cloth, the object of which is to protect the hose from both internal and external heat.

Air, air-brake, brewers', car heating, gas, hot water, oil, pneumatic, signal, steam drill, tanners', and wine hose are with

Stripping Small Hose From Mandrels

from three to ten plies and with internal diameters varying from ½ to 2½ inches.

Steam hose is made to withstand from 20 to 100 pounds of steam pressure to the square inch at temperatures varying from 259 to 338 degrees F.

The greater the steam pressure, the higher the temperature, and rubber hose, which is composed largely of vegetable matter, when subjected to great heat, will, in time, harden and lose its life and elasticity. It is superior to metal pipe in flexibility, but cannot be made to equal the latter in durability and heat resisting qualities.

Wire Wound Hose

Steam hose is frequently reinforced by wire or marline winding, which greatly increases its strength, though it adds nothing to its capacity to withstand internal heat.

For hose winding, either round or flat, galvanized special hard steel wire is used. This wire or armor is applied by special machinery. Hose for use in mines, quarries, for rock drills, by builders, contractors, and in rough service of this nature is as a rule wire-wound. The manner in which the wire is wound to the hose is such that the latter may be cut off at any point without danger of causing the wire to unwind.

Making Small Hose Brands

The smaller sizes of armored hose are usually sufficiently strong not to collapse when used as suction hose.

Drill Hose

Air and steam drill hose is made specially to withstand the high pressure and rough treatment it gets in use. This hose, if not armored with wire winding, usually has an outer cover of frictioned duck that is compounded to give the hose an excellent wearing surface. This special surface covering is considered as a ply, and a 5-ply hose of this kind has four plies inserted in its walls, the fifth ply being constituted by outside wrapping of frictioned duck. Steam and air drill hose is made with internal diameters of from ¾ to 2-½ inches.

Air-Brake Hose

Air-brake hose, of which a very large tonnage is manufactured each year and used by the railroads, is made in fifty foot lengths, but is usually sold in short sections with capped end, each piece being branded in any manner desired by the purchaser. The brands used are generally designed to provide a convenient means of keeping a record of the date of manufacture, time of application and removal of each section, so that the length of service rendered may be easily and quickly determined.

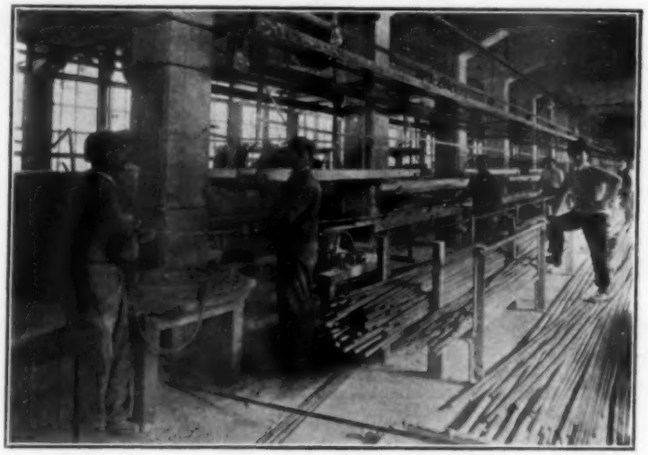
Air-brake hose is usually made with four plies and with internal diameters of from 1 to 1¼ inches. The plies are built up of rubber and cotton duck in a manner that prevents the hose from kinking and collapsing.

Car Heating Hose

Rubber hose is used to carry heating steam from the locomotive to the cars, and from one car to another during the winter time. This service is extremely hard on hose and requires the best materials and workmanship.

This type of hose is also used for running dynamos in baggage cars.

Steam car heating hose is made in fifty-foot lengths, and is supplied in full lengths or in sections of sufficient length to



Blowing Small Hose on Mandrels

form the connections between the cars. It varies in internal diameter from ¾ to 1½ inches, and is built up of from 5 to 6 plies of material.

Engine and Tender Hose

Engine and tender connection hose, which is used to carry water from the tender to the injectors of the locomotive, is sold in short sections, with internal diameters of from 1½ to 2½ inches. It is corrugated, wire wrapped and its construction is designed to prevent kinking and collapsing.

Gas Hose

Gas hose, such as is used for filling the tanks of railroad passenger coaches, is made of special rubber compounds that are not quickly affected by any quality of gas. This type of hose sometimes has wire inside or outside, or both, and varies in internal diameter from ½ to ¾ of an inch. It is made in five, six, seven and eight plies.

Acid Hose

Acid hose is much the same in construction as other hose of this type, but its lining is specially compounded to resist, as much as possible, the destructive action of certain acids, chemicals and dye-stuffs. It is generally of four-ply construction and runs in internal diameter from ¾ to 4 inches.

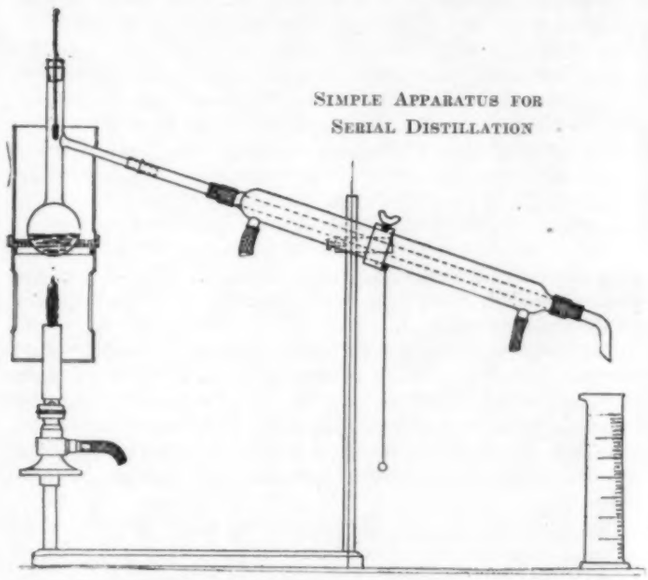
Composition of Commercial Gasoline

By D. Repony

Gasoline, the light serial distillation of crude petroleum, was at one time considered quite a nuisance by oil refiners, and it is only in the last few years due to the high prices which it now commands that it has been given more than passing consideration. Kerosene was the chief product of value at that time and rubber factories experienced little difficulty in obtaining a good grade of gasoline at comparatively low prices.

However, as the number of automobiles began to increase from year to year the demand for gasoline also increased, creating the usual result of higher prices due to the supply market. Kerosene today holds a position of secondary importance in the matter of profit to refiners.

Due to the great demand for gasoline advantage has been



SIMPLE APPARATUS FOR SERIAL DISTILLATION

taken of every possible means to increase the yield, and one of the main features has been to distill over more of the heavier boiling series with the fraction of gasoline. However, a far greater yield of gasoline has been effected by discovering the process of cracking heavier oils. It has been found by petroleum refiners that if the oil is subjected to violent heating in the absence of air, or is cooled and condensed from the upper portion of the still so as to fall into the hot residue, a larger yield of volatile products can be obtained than by direct distillation. The process of cracking has undergone considerable development during recent years, and is at present being conducted on an enormous scale in the United States.

Gasoline is sold chiefly by the definition of its specific gravity, and it is also accepted by most of the rubber factories by checking this simple test. If the gasoline is bought directly from a responsible concern, usually this test is sufficient, but on the other hand, just to prove that the specific gravity test might be of no real value at all, the following example is given: A mixture of 50 per cent. of 90 deg. Be. naphtha and 50 per cent. of kerosene will show a specific gravity test of ordinary gasoline, and yet this mixture will be a poor solvent when used for rubber cement, for it would take a long time before such a cement was dry. On the other hand, gasoline having the same specific gravity might have a very different serial composition, and this of course is due to the great complexity of hydrocarbon mixtures of which the gasoline might be composed, and therefore the test of real value is to subject the gasoline to serial distillation.

It is supposed that the gasoline bought by rubber factories is used exclusively as a rubber solvent, so it is of importance that the gasoline should be considered from this point of view, and for this purpose the best gasoline obtainable should not contain any large percentage of very light boiling series.

A large content of very light boiling series is wasteful, as much of it volatilizes before the cement is ready to use, and on the other hand when the gasoline contains a large amount of the series of very high boiling point it is very difficult to volatilize the last residue, and when inclosed in the rubber goods may cause blisters during vulcanization.

It will be ideal when it is possible to obtain gasoline of between 80 and 110 deg. C. boiling point.

In 1907 the gasoline which was sold for 71 deg. Be. naphtha read at the average 68 deg. Be. at 60 deg. F. In 1908 it had an average 67 deg. Be. at 60 deg. F. In 1909 it was 66 deg. Be. at the corresponding temperature. In 1910 the average was 65 deg. Be. at 60 deg. F. and in 1911-1912 it was 64 deg. Be. at 60 deg. F.

The first serial distillation was made in 1913 on gasoline which read 62 deg. Be. at 60 deg. F.

This gasoline began to boil at 55 deg. C.

	Distills Over			Distills Over	
At 60° C.	3 c.c. =	3 c.c.	At 100° C.	33 c.c. =	8 c.c.
65	5	2	105	40	7
70	7	2	110	54	14
75	9	2	115	68	14
80	11	2	120	79	11
85	15	4	125	88	9
90	20	5	130	96	8
95	25	5	135	98	2
	Residue 1 c.c.		Lost 1 c.c.		

The gasoline obtained in 1914 showed an average similar to the one shown in the above serial distillation.

The gasoline obtained in 1915 has shown the following test: 52 deg. Be. at 60 deg. F. This gasoline began to boil at 62 deg. F.

	Distills Over			Distills Over	
At 65° F.	3 c.c. =	3 c.c.	At 125° F.	62 c.c. =	6 c.c.
70	4	1	130	67	5
75	5	1	135	71	4
80	8	3	140	78	7
85	10	2	145	82	4
90	16	6	150	86	4
95	21	5	155	89	3
100	29	8	160	92	3
105	35	6	165	94	2
110	40	5	170	96	2
115	49	9	175	98	2
120	56	7			
	Residue about 1½ c.c.		Lost ½ c.c.		

In 1916 the gasoline showed the following test: Read 60 deg. Be. at 60 deg. F., and began to boil at 76 deg. C.

	Distills Over			Distills Over	
At 80° F.	2 c.c. =	2 c.c.	At 140° F.	72 c.c. =	7 c.c.
85	3	1	145	77	5
90	4	1	150	83	6
95	7	3	155	86	3
100	20	13	160	90	4
105	25	5	165	92	2
110	30	5	170	94	2
115	38	8	175	95	1
120	47	9	180	96	1
125	53	6	185	97	1
130	61	8	190	98	1
135	65	4			
	Residue about 1½ c.c.		Lost ½ c.c.		

And in the last three years gasoline has been approximately of the same composition, sometimes showing a somewhat heavier gravity, and consequently is of a higher boiling series, seldom showing any lighter gravity. The reason gasoline has not run down in gravity year by year, as can be observed in the few years previous to 1916, is mostly due to the fact that the gasoline used in rubber factories is the same grade as is used for driving automobiles, and for the latter it has not been found practicable to use any heavier fuel with the present carbureter system.

However, it is not practicable to use any heavier gasoline for rubber cement and it will pay in the long run to use the right solvent—a gasoline which will volatilize readily. This grade reduces the time of drying for cement and also prevents the occurrence of blisters during vulcanization.

Isolation and Examination of Rubberized Fabrics

By B. D'Porritt, M.Sc., F.I.C.

Chief Research Chemist, North British Rubber Company, Limited, Edinburgh, Scotland

In the course of his business, a manufacturer of rubber-proofed goods receives numerous inquiries, usually accompanied by small letter samples, for materials of every conceivable construction, quality, colour and weight.

Before quoting what he considers an equivalent quality he obviously must subject such patterns to careful examination.

While technical experience is generally sufficient to form a reasonably accurate estimate of the nature and general quality of the material, the type of proofing and fabric, and the methods of manufacture and vulcanization employed, it is sometimes desirable to carry out a thorough examination of either the proofing or the textile, and occasionally both. This is a more difficult problem than might appear at first sight, since owing to good adhesion being one of the criteria of satisfactory "spreading," the clean separation by physical methods of proofing and fabric is usually impracticable. Sufficient proofing for analysis in general can be obtained by soaking the sample in a low-boiling rubber solvent, such as benzene, and removing the swollen rubber by scraping with a blunt instrument. In securing a sample in this way, however, the fact must not be overlooked that the quality employed for this surfacing is frequently different from that which constitutes the body of the proofing, and that consequently a danger exists of the material for analysis not being representative should it be removed superficially. For this reason, it is usually impossible to deduce with certainty the weight of the textile by determining the percentage of some mineral constituent in both the proofing and the finished article. Such a superficial removal of the proofing, moreover, not only damages and distorts the fabric, but leaves the interstices between the threads unaffected, with the result that the textile remainder is quite unfit for an accurate estimate to be formed of its construction, composition and weight. With unvulcanized materials, proofed with pure rubber, for example, diving dress fabric, the separation of rubber from cotton can be readily effected by treatment with any of the recognized solvents for the former, such as benzene, carbon disulphide, and the like, but unfortunately for the analyst such samples are the exception rather than the rule, and, generally, the rubber, in addition to having been rendered insoluble by vulcanization, is usually associated with a considerable proportion of mineral matter or "compounding ingredients." Vulcanized rubber can, of course, be readily attacked and converted into soluble products by drastic treatment with reagents, like strong nitric acid or ozone, but these are inadmissible in the present instance, owing to the simultaneous interaction taking place with the cellulose when cotton fabrics are present. Moreover, owing to the thorough impregnation which the fibres undergo during the proofing process, it is impossible to dissolve the cotton by treating the material with any of the three standard cellulose solvents, namely, ammoniacal copper, oxide, concentrated zinc chloride solution or carbon disulphide and caustic soda.

In view of these difficulties it seemed that the employment of high-boiling solvents to effect the decomposition and solution of the rubber offered the best prospect of successfully separating the fabric intact from the constituents of the proofing.

Various liquids have been suggested by the numerous workers on the problem of the direct determination of mineral matter in rubber mixings, including nitro-benzene, α-nitronapthalene, xylene, paraffin, phenetole and cumene. A preliminary experiment using nitro-benzene resulted in a satisfactory separation of fabric and proofing in a sample coated with a vulcanized "pure" mixing after about one hour's boiling, but as the appearance of the material suggested that the treatment was resulting in degradation of the cellulose it was decided to substitute an indifferent solvent of lower boiling point.

For this purpose a paraffin "white spirit" was selected possessing the following characteristics:—

$$\text{Sp. Gr.} \times \frac{15.5^\circ\text{C}}{15.5^\circ\text{C}} = 0.7798.$$

Fractionation. Temp. Deg. C.	130	140	150	160	170	180	190	200	210	220	225
Distillate	2	5	10	25	48	64	78	87	92	96	100

A preliminary experiment showed that, after heating for about an hour at 160 degrees C. in this solvent, the separation of the proofing from a fabric coated with a "pure" mixing was almost complete. When, however, mineral matter was present and the degree of vulcanization high the rubber appeared to be somewhat less amenable to the treatment. The initial investigations to determine whether the method could be put on a quantitative basis were therefore limited to the former type of mixing, which is usually employed in the manufacture of materials required to be gas-tight.

With this object, three pieces of light two-ply material in process of manufacture were selected and samples of the unproofed cambric from each were secured in addition to pieces of the finished material.

The weights of the cambrics were first determined by cutting out pieces accurately measuring 3 in. by 3 in., drying these at 100 degrees C, in a current of dry air, weighing and calculating the weight in the customary units under "normal" conditions of humidity by the addition of 8½ per cent, the "regain" figure for cotton accepted as a standard in the textile trade.

Similar sized samples of the proofed materials were then prepared—preferably by cutting with a sharp knife on a sheet of plate glass—and each heated in a flask fitted with a reflux for 30-minute periods, with three changes of about 75 cc. of the paraffin solvent. The pieces of cambric, which by this time appeared to be completely free from rubber, were then removed, washed with ether, boiled in several changes of distilled water to remove any starch which had been employed for dusting the proofing during the process of manufacture, and weighed in the dry condition as previously described. The results obtained, calculated in ozs./yd², are shown in the following table:—

Sample.	Method of Vulcanization.	Total Weight.	Fabric Weights. Exterior Ply. Raw.	Exterior Ply. Stripped.	Interior Ply. Raw.	Interior Ply. Stripped.
1	Steam Heat....	8.69	2.33	2.31	2.25	2.33
2	" "	9.98	2.40	2.44	2.52	2.45
3	Vapor Cure,...	10.10	2.40	2.45	2.52	2.55

As these figures seemed to show that the weights obtained by this method were sufficiently accurate for technical purposes, it was decided next to compare the factory weights as determined on whole pieces of scoured cambric in the natural condition with those deduced in the laboratory from small dry samples of raw and stripped fabric with the aid of a humidity factor.

The following comparative results were obtained in this way on a 50-yard piece of scoured cambric:—

Unproofed. Whole Piece.	Unproofed. Small Sample. End I.	Unproofed. Small Sample. End II.	Proofed. Small Sample. End I.	Proofed. Small Sample. End II.
2.33	2.34	2.34	2.38	2.37

A sample of the unproofed cambric was next weighed and subjected to the stripping process, with the result that the weights before and after treatment were found to be identical, thus showing that the satisfactory agreement shown by the preceding figures could not be attributed to compensation of errors.

In order to ascertain the magnitude of the changes in width, length and area which occur during the process of proofing, the measurements of a series of pieces of raw cambric were carefully determined and compared with those found on the completion of the processes of manufacture. It was found that an initial total length of 518½ yards had increased, after spreading, to 519 yards, while the average width had diminished from 44 in. to 43½ in. It would, therefore, appear that a slight increase will probably occur in the weight per unit area of any textile during proofing as a result of the shrinkage which occurs in the weft. The magnitude of this alteration—1 per cent. in this particular instance—will naturally vary with the type of fabric and the preparatory treatment to which it has been subjected before proofing. In considering the results obtained on proofed material it will be necessary, therefore, to bear in mind that the weights may, on this account, tend to indicate a somewhat heavier textile than was actually used, and that in fine fabrics the number of threads per unit length may be slightly increased in the warp and correspondingly diminished in the weft direction. Occasionally, however, fabrics are proofed in the "grey" condition without scouring or bleaching with the warp yarns still weighted with size. This dressing will be removed largely by the operations incidental to the stripping process, and the results obtained will consequently suggest the use of lighter fabric than was actually the case. In such instances, the material usually appears brownish after the paraffin treatment, and on boiling with water the washings will be found to give a strong reaction for starch.[1] When, however, the weight of the fabric has been determined in the way already described and its weave and quality settled, a blank experiment can usually be made on a sample of equivalent material in the "grey" condition in order to ascertain roughly the correction to be employed in order to deduce the approximate proofing weight. The following table shows the loss experienced by two typical fabrics in both the "grey" and finished condition on successive treatments with various reagents likely to be employed in order to effect removal of the proofing constituents.

	Weights—ozs./yd.²—dry condition.			
Sample.	Initial.	Paraffin and Ether extracted.	Boiled with water.	Boiled with 2M aq. NaOH.
No. 1 grey (unsized)..	6.06	5.99	5.88	5.67
No. 1 red	6.01	6.02	5.95	5.77
No. 2 grey (sized)....	4.36	4.28	4.00	3.76
No. 2 bleached	3.88	3.86	3.82	3.73

It was thought to be of interest further to determine whether the heating to which the samples were subjected during the treatment with paraffin produced any reduction in the tensile strength of the material.

For this purpose a set of 20 warp test strips, 5 cms. by 20 cms. were prepared from a sample of fine 2.44 ozs./yd.² cambric, and of these 10 were boiled in the dry condition with paraffin, and subsequently extracted with ether, while the duplicate set were kept as blanks. Two days were allowed for the heated samples to regain their normal condition, and then the two sets were tested in both the normal and wet condition on an Avery machine, the loading being applied at a uniform rate of 18 kilos. per cm. width per minute.

Sample.	Test Conditions.	Breaking Loads, lbs.					Mean Strength. Kilos./metre.
Heated.	Normal.	199,	94,	97,	90,	93	860
"	Wet.	103,	106,	105,	98,	96	924
Natural.	Normal.	94,	88,	91,	98,	98	853
"	Wet.	103,	106,	98,	107,	105	944

These figures, which incidentally show the relation between the normal and the wet method of testing now coming into vogue, indicate that the heating process in the absence of moisture is without effect on the strength of the textile.

During the preceding investigations, it was noticed that a preliminary extraction with CS_2, which was employed in one or two instances, to remove free sulphur and any soluble organic matter present—resulted in marked swelling and weakening of the proofing, and appeared to facilitate its removal by the subsequent treatment with the paraffin solvent. It was, therefore, thought advisable to employ this preliminary treatment in the subsequent experiments on the compounded and more highly-vulcanized proofings which previously appeared to be somewhat resistant to the simpler method. A short extraction in a soxhlet was found in many cases to result in a remarkable softening and disintegration in the proofing, which could in the main be removed by lightly scraping the swollen material with a blunt knife. The organic portion of the residual proofing subsequently was proved to be readily dissolved by digestion with hot paraffin, and by these means the cotton was left free from rubber[2] and fit for inspection, though still containing an appreciable amount of the mineral constituents of the proofing mixture.

Before the weight of textile could be determined therefore, it was necessary to remove this contamination as far as possible, or to leave only compounds the weight of which could be ascertained for deduction by merely incinerating the cotton and weighing the residual ash.

To effect this it is necessary in the first place to determine the nature of the mineral ingredients in the proofing mixture, and to remember that the reagents selected to dissolve these must be limited to such as have no effect on cellulose. On account of the readiness with which cotton is attacked by mineral acids, dilute solutions of weak organic acid must be employed to effect the removal of basic substances, as, for example, whiting, magnesia, litharge, lime, zinc oxide, etc., which are amongst the most commonly employed "fillers" used by the rubber manufacturer. In view of the variety of such adjuvants encountered in technical practice, it is obvious that no generally applicable method can be devised for the removal of the residual mineral matter, and that each instance must therefore be considered individually. In certain cases, even, it may be simpler to determine the weight of cellulose present by combustion, an estimation which might be conveniently and rapidly effected with a furnace of the Dennstedt type.[3]

As a preliminary quantitative experiment, two materials were selected, one spread and the other calendered on one surface with different mixings, both containing lampblack, litharge and whiting as the mineral constituents, and both vulcanized by the dry process. Two samples were cut from each in addition to samples of the raw fabrics. After being subjected to the stripping process already described, the samples of each were respectively further treated as follows:—

1. Boiled with several changes of water dried and weighed.
2. Similarly treated, and subsequently boiled with two changes of ,*M* sodium carbonate solution, washed, warmed with two changes of ,*M* acetic acid solution, washed and dried.

After the weight of the dry fabric had been ascertained the material in each instance was incinerated in order to determine the completeness with which the mineral matter had been removed.

The results (in ozs./yd.²) obtained were as follows:—

	Raw.	Stripped (1).	Stripped (2).
Spread, weight	6.75	7.70	6.78
" ash	0.02	0.71	0.09
Calendered, weight.....	5.74	6.51	6.76
" ash	0.05	0.49	0.86

In view of the satisfactory agreement of the first and third sets of the foregoing results, it was decided to test the method on a further series of four typical proofed fabrics.

The following particulars will indicate the nature of these, and the treatment to which each was subjected.

[1] The finishing processes ordinarily employed for the cotton textiles of the rubber trade seldom remove the size completely.

[2] The presence of a light coating of rubber on a material can be demonstrated by staining with a benzene solution of a disazo compound such as Sudan III., which leaves the cotton practically uncolored, while the rubber is dyed an intense red.

[3] "Quantitative Chemical Analysis," Cumming and Kay, 1916, p. 339.

The first was a heavy white surgical sheeting spread on both surfaces with a rubber-sulphur mixing heavily compounded with "white substitute" and lithopone, and vulcanized in steam. On standing a few hours in CS_2 the rubber surface coatings separated almost completely from the cotton, which was removed, dried, and any residual rubber eliminated by the paraffin treatment. The material was afterwards treated with $M/_4$ alcoholic NaCH to dissolve any substitute left by the preceding treatments, boiled with dilute Na_2CO_3 solution, followed by dilute acetic acid, and finally washed, dried and weighed.

The second material was a cheap light batiste proofed on both surfaces with a rubber mixing containing a large proportion of "white substitute" and vulcanized with S_2Cl_2 vapor. This was treated in the same way as the preceding sample.

The third sample was a heavy calendered garment fabric, coated on one surface with a high quality rubber-sulphur mixing containing lampblack, litharge and whiting, and vulcanized by the "dry heat" process. The proofing was removed as before, but the after-treatment with alcoholic NaCH was omitted.

The last sample consisted of a heavy red surgical sheeting spread on both surfaces with a good quality rubber-sulphur mixing containing antimony sulphide, zinc oxide, whiting and magnesia as mineral fillers, vulcanization being effected in steam. In this instance, after stripping the proofing the residual mineral matter was removed by successive treatments with dilute acetic acid, aqueous $_4M$ NaCH and tartaric acid, a thorough washing with distilled water following the application of each reagent.

In every case the cotton fabric was weighed in the piece prior to proofing, and small samples removed from either end for a confirmatory test in the laboratory. Samples were taken also from both ends of the finished material, and after the weight of the isolated cotton had been determined the residue was incinerated in order to ascertain the completeness of the removal of the mineral matter.

The results obtained for the weight of the textile calculated in ozs./yds² under normal conditions, together with the ash in grammes obtained on samples 3 in. by 3 in. before proofing and after stripping, are shown in the following table:—

		Unproofed.		Stripped.		Ash.	
	In	In Laboratory.		In Laboratory.			
Quality.	Factory.	End I.	End II.	End I.	End II.	Unproofed.	Stripped.
1	3.90	3.89	4.22	3.87	3.95	0.0133	0.0363
2	1.90	2.09	1.97	1.94	1.91	0.0006	0.0040
3	5.16	5.12	5.37	5.00	5.04	0.0062	0.0010
4	6.30	6.33	6.32	6.33	6.22	0.0052	0.0043

The foregoing figures indicate that it is generally possible to determine the initial weight of the cotton material in a small sample of a rubber-proofed fabric with sufficient accuracy for technical purposes, and to obtain the material in a fit condition for textile examination. In cases, however, in which intractable mineral fillers, such as zinc, cadmium or mercuric sulphides, are present, it may be necessary to resort to combustion or some solution method in order to secure a trustworthy result.

In two of the foregoing examples it will be noticed that the agreement between the laboratory weights of the two ends of the pieces of raw fabric is not altogether satisfactory, and for this reason it was thought desirable to carry out a further investigation to ascertain whether the results obtained by weighing small samples of cotton fabric could be accepted as an index to the average weight as determined on the piece. With this object a set of materials was selected varying from a 22 oz. duck to a 2 oz. fine cambric, and the results obtained by weighing in the piece (a) were contrasted with those obtained from either end in the laboratory in the following ways:—(b) samples, 12 in. by 12 in., weighed in the natural condition; (c) samples, 3 in. by 3 in., weighed in the dry condition; (d) samples, 12 in. warp by 3½ in. (weft), weighed in the dry condition. In calculating the results in ozs./yd.² from (c) and (d), the usual 8½ per cent. allowance was made for humidity regain.

	Method A.	Method B.		Method C.		Method D.	
		End I.	End II.	End I.	End II.	End I.	End II.
Heavy Duck	22.72	24.20	24.17	24.53	24.23	24.31	24.32
Medium Duck	16.57	17.76	18.38	18.38	18.61	17.80	18.24
Open Duck	9.26	9.92	10.03	10.49	10.19	10.25	10.14
Wigan	6.79	6.88	7.38	7.11	7.54	7.18	7.45
Wigan	4.96	5.11	5.27	5.27	5.31	5.15	5.29
Cambric	2.36	2.35	2.33	2.42	2.38	2.33	2.34
Cambric	1.82	1.88	1.86	1.92	1.85	1.90	1.89

The agreement obtained was unexpectedly good, and it would therefore seem that in general the separation and identification of the textile in rubber-proofed cotton material can be satisfactorily effected in a small sample of about 3 in. square.

While the analytical results obtained by this procedure may be regarded as very useful and in general accurate, the fact that the small pieces of material employed do not constitute average representative samples must not be overlooked.

The uniformity of the weight of a textile depends to a great measure on the uniformity of the yarn employed in the weft, and the use of a shuttle of heavy yarn or the presence of a bad weaving fault may therefore invalidate any conclusion as to the average weight of a textile based on the results obtained from the examination of a small sample.

Determination of Free Sulphur

Sulphur in a hot cured rubber compound is present as sulphur of vulcanization, free and combined with the mineral matter. Total and free sulphur can be determined with accuracy; the correct estimation of the mineral sulphur depends upon a good method for separating the mineral from the organic, while the sulphur of vulcanization is usually obtained by difference. A manufacturer who knows the amount of sulphur and mineral carriers present in his compound can only judge the extent of the vulcanization by means of a free sulphur determination. This is best done as follows:

The finely divided sample is introduced in the capsule of a Soxhlet extraction apparatus, a six ounce extraction flask being used. The amount of the sample taken varies, but generally two grms. is sufficient. The extraction is then carried for 8 to 10 hours, using acetone, B. P., 56-57 deg., as a solvent. Free sulphur resins and resin oils, mineral oils, paraffins and the rubber resins are thus dissolved. The apparatus is then disconnected, the excess of the solvent evaporated, and the flask dried at 55 deg. to 60 deg. C. in an oven. I have found that a higher temperature gives low results and is quite unnecessary since the weight of the extract is immaterial. Fuming nitric acid about 60 cc. is then added to the residue in the flask, the latter covered up with a slightly tilted watch glass, and the whole boiled gently until most of red fumes have been driven off. The watch glass is then removed and a small pinch of powdered $KClO_3$ added to the boiling liquid. Continue adding small quantities of $KClO_3$ until the liquid is entirely clear. When the greenish color has disappeared remove the flame and cool the flask in ice water. If the operation has been well conducted a clear liquid with white flakes or preferably a lump of paraffin floating on the top should be obtained. This is separated by filtration, the filtrate evaporated nearly to dryness, taken up with HCl, the operation being repeated several times in order to drive off the HNO_3. Dissolve the residue in hot water, add 1 cc. dilute HCl and filter in a 500 cc. beaker. Make up to 400 cc. with water, heat to boiling, and add, drop by drop, a slight excess of a 10 per cent. solution of $BaCl_2$. Let stand over night in a warm place filter, and weigh the $BaSO_4$ as usual.

Any organic matter not destroyed will produce a colloidal solution, causing the $BaSO_4$ to pass throught the filter, and in some cases preventing its precipitation. This is quite important if we consider the fact that free sulphur is a good insulating compound and seldom goes higher than .80 per cent.

Notes of the Industry

Goodrich to Erect New Building—Mason to Own Plantation—Meeting of American Chemical Society—Mohawk Expansion on Coast

Goodrich Obliterates Old Land Mark

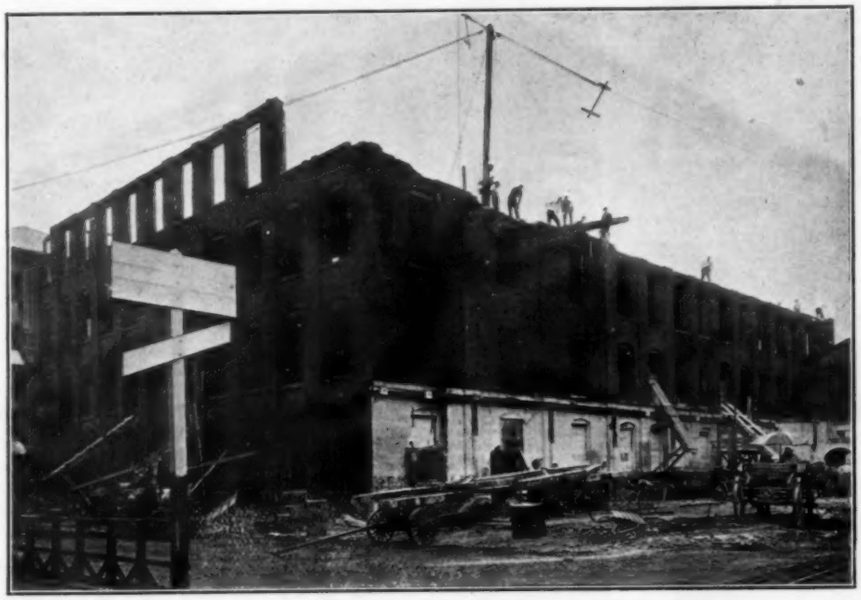
The photograph shows leveling crews busily engaged in razing one of Akron's rubber industries' oldest land marks. The buildings in this group were the home for a number of years of the American Hard Rubber Company.

These buildings were originally constructed by the Goodrich Company about the year 1884. It was in these buildings that the Goodrich Company first manufactured hard rubber products. Four years later the Goodrich Hard Rubber Company was formed, the land, buildings and stock of the hard rubber department being transferred to the new company.

In 1898 the American Hard Rubber Company, a combination of several small companies was organized, taking over the holdings of the Goodrich Hard Rubber Company. This new company retained possession of the buildings until last year when they removed to their new quarters in East Akron.

In the earlier days the Goodrich Company never dreamed they would need any of the space south of Factory Street—now known as Rubber Street, but time proved otherwise until finally the Goodrich buildings entirely surrounded the American Hard Rubber Company site.

A mammoth eight-story and basement building costing $1,500,000 will replace all of the buildings in this group. In fact, from a point of floor space it will be the largest building in Akron. The construction and equipment will be of the most modern type.



OLD GOODRICH LAND MARK BEING RAZED

Vacuum Cups Open in Jacksonville

Florida's automobile owners are reported to have shown their opinion of Pennsylvania Vaccum Cup Tires and Ton-Tested tubes. The maker of these, the Pennsylvania Rubber Co., Jeannette, Pa., has been obliged to open a dirert branch to serve the demand. A new store thus graces Jacksonville's automobile row, located at the intersection of Clay and Forsythe streets, just a block south of the point where the city recently voted to build a new bridge by which much of the traffic entering or leaving the city will travel in the future. Capt. J. L. Branan, recently returned from overseas will be in charge of the new branch.

Overland Rubber Plans Factory

The Overland Rubber Company, Eau Claire, Wis., has had plans prepared by E. Hutchins, industrial engineer, 703 Wisconsin Street, that city, for a 4-story, 100 x 120 ft. factory.

Mohawk Expansion on the Coast

The Mohawk Rubber Company, of Akron, Ohio, is showing great activity on the Pacific Coast.

M. E. Mason, secreary and sales manager of the company, says the increase in business has made it necessary for them to practically double their San Francisco branch facilities.

A largely increased stock of cord and fabric casings as well as grey and red tubes is now being carried in the San Francisco branch. W. G. Fitzgerald, formerly representative of the Mohawk Company in Kentucky, now has charge of this branch. By his years of successful experience in the tire business and with the Mohawk Company, Mr. Fitzgerald is well equipped for this important work on the Coast.

The Jensen-King-Byrd Company, of 320-324 Riverside Avenue, Spokane, Washington, is now the distributor of Mohawk Tires in their territory, and Munnell-Sherrill, of 40 First Street, Portland, Oregon, is also a Mohawk distributor. Both of these jobbing houses carry large and complete stocks of Mohawk Tires and this greatly facilitates prompt shipments in the Northwest.

Mason to Own Plantation

Following recent announcement by the Mason Tire & Rubber Company, Kent, Ohio, of the building of a cotton fabrics mill, it is now learned that the Mason Brothers have taken steps to acquire several thousand acres of rubber plantations in the Far East. These will comprise plantations sufficient to fill the Company's requirements next year, and also partially developed lands in order to provide for future increase of business. The Mason Plantation Company, in conjunction with the Mason Cotton Fabrics Company, will thus control the great essentials of raw material, including pigments, for the building of Mason Tires. It is proposed to build in Kent a large concrete warehouse exclusively for rubber storage.

J. P. Matthews, now Purchasing Agent of the Mason Tire & Rubber Company will assume the management of the Plantation Company, and with O. M. Mason, President of the company, will soon leave for Singapore for that purpose. Mr. Matthews will reside there permanently, as was announced in the July 25 issue of THE RUBBER AGE AND TIRE NEWS.

The Mason Company is one of the few tire companies owning rubber plantations, and is believed to be the only one having original sources of supply of both rubber and tire fabric. Building of the Mason Cotton Fabrics Mill is now well under way in Kent.

Contracts have been let for two large additions to the Mason Tire & Rubber plant which will double the capacity and place it fifth in production in the Akron district. The increased capacity will require about 500 additional employees. This is the third time in the same number of years that the capacity of the plant has been doubled. Two recent additions to the production list are the 40x8 pneumatic cord truck tires and 30x3½ cord tires.

To provide proper living conditions for the additional employees of the rubber plant and to meet the needs of the influx of operatives expected when the Cotton Fabrics Mill starts, the Mason Tire & Rubber Company and the Mason Cotton Fabrics Company have jointly incorporated the Mason Housing Company, for $100,000. This is in pursuance of the policy of encouraging home owning among Mason employees, which is believed to be a valuable asset.

Chemical Society Meeting

The fall meeting of the American Chemical Society will be held in Philadelphia, September 2 to 6. Coincident with the general meeting there will be a meeting of the Rubber Division.

Arnold H. Smith, secretary of the Rubber Division, announces that though the details of the program are not yet complete, the meeting will be very interesting. A large number of papers will be presented dealing with live topics in the rubber industry.

Risselt Now with Spadone

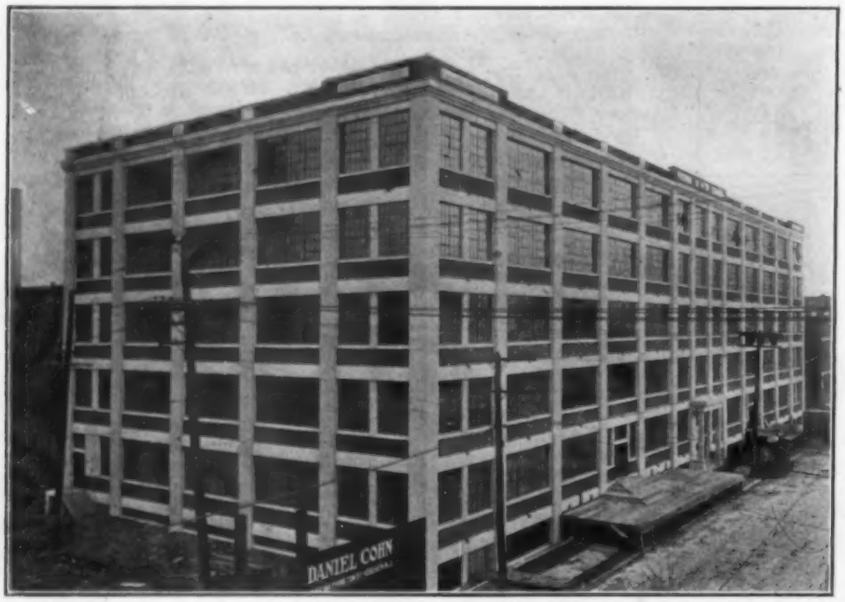
Frank C. Risselt, formerly of the Cameron Machine Company of Brooklyn, has entered the employ of the Spadone Machine Company, sole owners and manufactures of the Bolton Vertical Bias Cutter. The Spadone Machine Company is to be congratulated upon securing the services of such a man as Mr. Risselt.

Notes of the Industry

Goodrich Warehouse in Hoboken—Quinn Resigns from American Manufacturers' Export Association—Phoenix Expanding Akron Plant —Goodyear Buys Yarn Mill at Fall River, Mass.

Goodrich Warehouse in Hoboken

A warehouse located at 15th Street and Park Avenue, Hoboken, was recently leased by the B. F. Goodrich Rubber Company for the storage of finished stock, which embraces practically everything that is made of rubber, including pneumatic and solid tires, mechanical rubber goods, rubber footwear and rubber insulated wire.



New Goodrich Warehouse in Hoboken

The building is of modern fireproof construction and has a frontage of 256 feet and a depth of 100 feet with a net storage space of 140,000 square feet. With the additional storage room the Goodrich Company will be equipped to meet the ever-increasing demand for their products. Direct connections with the large shipping terminals will facilitate quicker and more efficient traffic service for the thousands of Goodrich dealers throughout the Metropolitan and outlying districts.

The opening of the building was marked by a dance and reception held there Thursday evening, July 24th, for the Goodrich employees and their friends.

Stanley J. Quinn Resigns from A. M. E. A.

Stanley J. Quinn, secretary of the American Manufacturers' Export Association, has resigned to accept a position with one of the members of the association. His resignation took effect on May 31. At a meeting of the Board of Directors of the association, held last week, Robert F. Volentine, who, for the last several months has been associated with the Brooklyn Chamber of Commerce, was elected as Mr. Quinn's successor.

During the period that Mr. Quinn has held the position of secretary, there has been a steady growth both in the membership and financial strength of the association.

Columbus Tire to Erect Plant

The Columbus Tire & Rubber Company, Hayden Building, Columbus, Ohio, plans to build a one-story, 100 x 340-ft., factory on West Goodale Street, that city. The Austin Construction Company, Columbus, Ohio, will have charge of the undertaking, which will cost approximately $92,000.

Phoenix Expanding Akron Plant

(Special Akron Correspondence)

Joseph Dangel, superintendent of the American Hard Rubber Company's Akron plant, and Morris E. Mason, secretary of the Mohawk Rubber Company, Akron, Ohio, have been added to the directorate of the Phoenix Rubber Company, Akron, Ohio.

The Phoenix will shortly start on a program of expansion, which will include new buildings and equipment to cost over $250,000. The company has heretofore confined its operations to reclaiming rubber, principally for the Akron factories.

This department will be continued and enlarged, but the new buildings and machinery will be in the main devoted to the manufacture of Phoenix tires and mechanical rubber goods of all kinds. These products of the company have been on the market in a small way for some time and a large volume of business has accumulated in excess of the factory's present capacity.

The directors are Ernest C. Deibel, Theodore Krumeich, S. G. Rigdon, E. F. Krumeich, F. R. Ormsby, J. G. Bretson, Joseph Dangel, Morris E. Mason, E. Fritchele and George J. Huber. These directors elected the following officers: E. C. Deibel, president; Theodore Krumeich, vice-president; E. F. Krumeich, treasurer; J. G. Bretson, factory superintendent, and S. G. Rigdon, secretary and general manager.

Stronghold Activities

The Rubber Products Company, Barberton, Ohio, makers of "Stronghold" tires and tubes, have announced that they are in the process of developing a manufacturing program which will double their output within 30 to 60 days.

The demand for "Stronghold" tires and tubes is increasing by leaps and bounds in all parts of the country and the twenty-two years' experience, which the rubber products people have had in the manufacturing business is proving a real asset in the trade development.

Exclusive territory is offered to distributors of standing and the new mileage guarantee, of 7,500 miles on Ford size Fabrics and 6,000 miles on all other Fabrics, is proving very attractive to scores of distributors and dealers.

Edward S. Babcox, for many years advertising manager of the Firestone Tire & Rubber Company, Akron, Ohio, is sales manager of the Rubber Products Company.

Frazar Buys Building

Frazar & Company, suppliers of "States" brand Antimony, Zinc Oxide, Magnesia, etc., to the rubber trade, have recently purchased the six story office building at 72-76 Trinity Place, New York City, which has a frontage of 104 feet, overlooking Trinity Church Yard and facing Broadway.

This property after extensive alterations are completed will be occupied by the offices of Frazar & Company and will be known as the Frazar Building.

Vanderlip U. S. Rubber Director

At the regular quarterly meeting of the board of directors of the United States Rubber Company, New York City, held in this city on July 2, Frank A. Vanderlip, chairman of the board of the American International Corporation, New York City, and formerly president of the National City Bank, New York City, was elected a director to succeed W. S. Kies, vice-president of the American International Corporation.

Miley Manages National Sales

C. E. Miley, for ten years general sales manager of the McGraw Tire & Rubber Company, Cleveland, Ohio, with a factory at East Palestine, Ohio, has resigned that post and on July 1st became vice-president in charge of sales with the National Tire & Rubber Company, East Palestine, Ohio.

Dri-Cure Retreading

The Dri-Cure Retreading Company, 405 East Market Street, Akron, Ohio, has been organized by H. B. Houghton, Jr., E. M. Harbin and M. L. Cope to distribute the products of the Western Vulcanizer Company, Chicago, Ill.

Goodyear Buys Yarn Mill

Announcement has been made in Fall River, Mass., of the sale of the Globe Yarn Co. plant, the last of the yarn factories operated under the control of the New England Cotton Yarn Co., to the Connecticut Mills Co., a subsidiary company of the Goodyear Tire and Rubber Co.

The plant will be used by the new owners for the manufacture of yarns for tire fabrics, and the plant will be immediately overhauled and new equipment installed. Extensive alterations are planned. The Globe Yarn Co. operated 54,000 spindles producing yarns and thread, and was capitalized at $1,000,000. The Connecticut Co. is reported to have paid $760,000 for the plant.

Importance of Inner Tubes

"What the heart is to the body, the tube is to the tire, and the sooner the dealer reconciles himself to this fact, the quicker will he gain the confidence and business of the motorists in his territory," is the opinion of F. C. Millhoff, General Sales Manager of The Miller Rubber Company, of Akron. Just as the usefulness of the body ends with the stopping of the heart, he points out, so the tire becomes useless when the tube ceases to function properly.

"Dealers who want to hold their trade and constantly build up more trade will be just as particular about the quality of tube they sell as they are about the quality of tire they handle," says Mr. Millhoff. "They will impress upon their customers the fact that uninterrupted tire mileage depends to a large extent on the service rendered by the tube. An inferior quality of tube will endanger the life of the best casing ever manufactured, but a good, staunch tube will prolong the life of the poorest casing.

"Furthermore, the dealer cannot be too careful in selecting the make of tube he is going to sell. For real tube quality he must depend in no small degree on the word of its builder. It may be of splendid appearance and strong enough to pull a train of cars and yet be full of invisible defects that will wreck the best kind of a casing.

"Rubber is full of those tiny pin-holes which the finest calendering in the world will not entirely eliminate. Those little holes cause air seepage by diffusion. Rubber chemically assimilates a certain amount of air on one side and passes it off on the other especially when under pressure. One of the chief problems of tube manufacturing, therefore, is not only to reduce the possibility of air seepage, but also to construct a tube that will stretch easily with the constant distortion of the tire without an excessive amount of heat. Until the dealer knows that this problem has been solved by the manufacturer who is attempting to sell him tubes, he should refuse to take on that make of tube."

F. C. Millhoff

General Sales Manager, The Miller Rubber Co.

Tire Dealers on Picnic

The members of the Milwaukee Tire Dealers' Association held their annual picnic at Genesee Lake, Wisconsin, on July 13, and the outing was a complete success from every angle.

Sixty-nine automobiles were hardly enough to carry the members of the association and their families to the lake. About three hundred in all were present and all engaged in games, swimming, and foraging from their lunch baskets.

The Milwaukee Tire Dealers' Association have at the present time about sixty members and it is growing at the rate of several new members each week. In fact every tire dealer in good standing in Milwaukee is a member or is an applicant for membership.

Tires Are Transported by Airplane

Rivaling in commercial importance the crossing of the Atlantic and the establishment of aerial mail routes is the inauguration of the first aerial express line by George W. Browne of Milwaukee, western representative of the Curtiss Aeroplane Corporation and distributor for Willys-Overland, Inc.

Actual demonstration of the possibilities of transporting commodities by air has just been made by two planes from the Browne Aerial Express fleet.

These planes, carrying a consignment of tires for The Willys-Overland Company at Toledo, from The Federal Rubber Company of Cudahy, Wis., on the outgoing trip and a number of Overland automobile parts on their return, just completed a successful trial trip between Milwaukee and Toledo.

Federal Tires Shipped by Airplane

The two planes, piloted by Lieut. Milton Elliott and Lieut. Shirley Short, originally departed from Cuhahy, Wis., with their cargoes of Federal Tires stopping at the Browne aviation field in Milwaukee. From there they flew to Chicago and thence to Toledo. On the return trip they transported a quantity of Overland parts to the Browne salesroom in Milwaukee.

The two pilots are team-mates of Lieut. Omer L. Locklear, the daring flyer who has set the aerial world agog with his thrilling leaps from one plane to another in mid-air. Elliott and Short operate the planes used in these sensational feats. All three were instructors in the United States aerial force and have worked together since they entered an army aviation school soon after the beginning of the recent war.

The inauguration of this aerial express and its successful trial trip is taken as indicative that the aeroplane soon will be in general use commercially. Mr. Browne, the sponsor of the innovation, already is planning to extend and develop the idea.

He may use his planes in rendering speedy service to the members of his dealer organization and his customers whenever occasion demands. It will not be long, it is stated, until this distributor may be delivering parts and making repairs on automobiles for owners of Overland and Willys-Knight cars in his territory.

Production Does Not Meet Demand

Horace DeLisser, President of the Ajax Rubber Company, Inc., asserts that the conditions obtaining in the rubber industry reflect conditions generally in American industrial circles. He points to the inherent American characteristic of confidence as the basic reason for the firm, steady tone which business has assumed.

"Taking the rubber industry as a specific example," Mr. DeLisser asserted, "you can search the records in vain for a year that even approaches 1919 in business probabilities. Automobile registrations, as of January 1, exceed 6,000,000. This total is increasing materially each week. Ten of the 48 states have available funds of more than $2,000,000 each, to be devoted in 1919 alone to the construction of good roads. This money has become available through the passage of the Federal aid road act. Texas heads the list, with $4,678,989.50. The other 47 states are provided for proportionately, with Delaware trailing, with $130,340.50.

"Importance of the automobile, as America's secondary system of passenger and commodity transportation, has more than been firmly established. Every car that boasts wheels and an engine is running, and is going to continue to run as long as its motor can function. Hence, tire demands are ahead of the supply. The whole rubber industry cannot produce the tires this year that will actually be needed."

Akron Growth Is Phenomenal

Announcements of Firestone, Goodyear and Goodrich Tend to Show That Activity in the Rubber Industry Is Greatly Increased

(Special Akron Correspondence)

An astounding story of rapid growth of an industry is told and retold in recent announcements from the offices of the large rubber companies here.

The Firestone Tire & Rubber Company is to increase its capital five-fold, from $15,000,000 to $75,000,000, and plans to double the capacity of its Akron factory.

Directors of the B. F. Goodrich Company have approved plans for the largest single factory building in Akron, the estimated cost of which is over $1,500,000.

F. A. Seiberling, president of the Goodyear Tire & Rubber Company, just back from a trip to Los Angeles where he broke ground for another Goodyear branch factory, announced that his company was unable now to fill more than 70 per cent of its orders and predicted that 10,000 men would be added to the Akron force as soon as the housing situation improved.

In this connection it is interesting to note the comments of rubber manufacturers following the announcement that Goodyear would build a branch plant on the Pacific coast to take care of its business in that section.

Commenting of the Firestone plan for expansion, C. M. Hamill, secretary to H. S. Firestone, said:

"The increased demands for Firestone products and the resumption of foreign trade relations have brought about a flood of orders which we cannot more than half meet.

"It has appeared necessary for some months that the company enlarge its producing capacity. Mr. Firestone weighed carefully the advantages of building the additions in other cities and the disadvantages of building them in Akron.

"It was apparent that there are many disadvantages connected with Akron at the present time. The housing situation is bad, and the water supply situation is bad. Conditions under which our employees must come to work across a number of grade crossings were counted disadvantageous.

"But Mr. Firestone decided that whatever extensions are made will be made in this city. Akron will continue to be the home of Firestone.

"The extent of the increase in plant space has not been decided upon, and details have not been arranged. It is, however, obvious that the capacity must be doubled to take care of present demands."

The following announcement was made after the Goodrich directors' meeting here last month:

Unfounded rumors that the B. F. Goodrich Company was planning to build additional factories in other cities were exploded following the semi-annual meeting of the board of directors when it was announced that plans had been approved and an appropriation of one and a half million dollars had been made for the immediate construction of the largest single building under one roof in the city of Akron. It will be used as a mill room and warehouse.

The new building will be nine stories high, 180 feet by 300 feet long and will contain more than nine acres of floor space. It is likewise the largest contract ever awarded in the city for no other single building has so much floor space under one roof. The first two stories will be of steel beam and girder construction with concrete floors and the remaining stories will be built on the mushroom plan of brick, steel and concrete. Some idea of its mammoth size can be gained from the fact that it will contain ten of the latest improved automatic elevators ranging in capacity from four to ten tons each.

According to T. E. McShaffrey of the T. E. McShaffrey Construction Company, the building contractors, the installation of the great rubber mills will begin as soon as the first and second floors are completed. Mr. McShaffrey has promised Goodrich officials that he will have the structure under roof by January first and within thirty days after that time it will be entirely finished.

That Akron is to share immediately in a greatly increased production program is gained from the fact that Goodrich directors have also provided for an increase in tire production, effective at once. This follows the excessive demand for tires along with all other rubber products as well.

"We are just showing our confidence in Akron," said President B. G. Work, following the meeting. "We are convinced that the logical place for our expansion is here in Akron where the city needs us and where we need the people and their co-operation and we are further safeguarding the rubber supremacy of Akron rather than taking any possibilities away from it," he added. "Furthermore," continued Mr. Work, "we feel that by our action we have cemented the progress of Akron with the future of Goodrich and are making Akron more than ever the 'City of Goodrich.'"

President Seiberling of the Goodyear laughed at a recently published report that the company was going to leave Akron and move to California. Instead of moving, he said, the company will employ 10,000 additional men as soon as housing conditions will permit in order to make it possible to run the Akron plant to capacity.

"What we have actually done is to make arrangements for employing approximately 7,000 or 8,000 men in the plant out there in order to take care of our western trade," he said.

"Transportation charges have risen to such an extent that we found it too costly to ship our raw materials from the coast to Akron and then back over the same route to the consumer and we will build a plant there in order to take care of that business.

"Any man with a little reasoning power who can put two and two together ought to know that we would not take a $30,000,000 plant which we have here and abandon it to move to another location.

"The Goodyear Tire & Rubber Co. will be here next year and the next year and the next year and right along as long as there is a company.

"Housing conditions here are bad at present. It makes it impossible to run our plant to full capacity. The best we can hope to do is to operate the plant on a 70 per cent basis, but the company has built 1,200 homes in Akron and will build in the very near future at least 800 more which in a little way will help solve the problem.

"And then as soon as the housing situation makes it possible the additional men will be put on.

"No matter how many tires we may make on the coast to take care of that trade the Akron factory will continue to grow. It is impossible for us to take care of our business now, and we must expand as long as business increases."

Another interesting sidelight on industrial growth in Akron was given by Mayor I. S. Myers recently when he announced the opening up of large tracts of land in the southern part of the city for factory sites. This was made possible by the transfer to the city by the Northern Ohio Traction & Light company of an unused right of way 60 feet wide and 5,000 feet in length.

One of the first developments in this section will be the erection of a $1,000,000 steel plant covering 11 acres. H. S. Firestone is interested in this project and already has plans for the new plant.

Willys-Overland vs. Overland Tire

Wall Street, or at least that part of it concerned with the rubber stock market, has shown considerable interest in the little tiff between the Willys-Overland Co. and the Overland Tire Co., following the advent of the latter company into public notice. John N. Willys, president of the Willys-Overland Co., issued the following statement, which was prominently displayed in many daily papers: "John N. Willys, president of the Willys-Overland Co., manufacturer of the Overland automobile, denies that he or any of the companies which he controls are or ever have been interested in the stock of the Overland Tire Co. or its business and affairs, and that any of the products of the said Overland Tire Co. are being handled by or through the Willys-Overland Co., or any of the interests controlled by him."

After waiting until the Willys-Overland Co. had given them several thousand dollars' worth of free advertising, the Overland Tire Co. shed some light on the origin of the word "Overland" when it issued the following announcement: "An Open Letter to Mr. John N. Willys. Your continued public statements denying connection with the Overland Tire Co. have been called to our attention, and we therefore take the liberty of informing you that the Overland Tire Co. has never attempted to convey the impression that it was in any way identified with the Willys-Overland Co.

"The word 'Overland' was introduced many years ago by the 'Overland Trail,' and has since been used very extensively and freely. The Union Pacific Railroad years ago named its finest passenger train the 'Overland Limited.' The State of New York has passed favorably upon the right of the Overland Tire Co. to use the name 'Overland' in connection with its tires. Moreover, a glance at the New York Telephone Directory reveals that there are thirteen companies operating under the name 'Overland.' These various concerns manufacture articles ranging in scope from drugs to motion pictures.

"Our growing business is based upon our ability to successfully rebuild a tire which we are proud to guarantee for 4,000 miles, and not upon any similarity with the name of the Willys-Overland Co. The total annual loss resulting from the scrapping of automobile tires is appalling, and any concern which honestly strives to reduce this loss to the public is deserving of unqualified commendation and hearty support. Signed—John D. Olwell, President."

Bergougnan Announces Mileage Guarantees Certified by National Surety Company

A New Departure for the Tire Industry—Claimed That This Guarantee Will Be a Boon for New Companies and That Only the Products of Reputable Manufacturers Will Be Guaranteed

In order to convince the consumer that the guarantee placed on tires by the Bergougnan Tire Corporation is to be absolutely relied upon and in order to facilitate the dealer in his sales efforts, this company guarantee will hereafter be certified by the National Surety Company.

One of the most sensational steps in the evolution of the nation's automobile tire industry is the "guarantee" of the tire makers' mileage guarantee, which the National Surety Company recently announced. The National Surety Company has already written several large bonds under this new guarantee. The department by which the new guarantee is being handled is in charge of Howard Abrahams, one of the company's vice-presidents.

"There seems to us to be many excellent practical reasons for our issuing a guarantee covering the guarantees which the manufacturers issue to tire users," Mr. Abrahams said last week.

"In the first place, some guarantees issued by tire makers to their consumers are not in the form of a written contract. They are more in the nature of the oral assurance which every seller gives to every buyer, regarding the lasting quality of his goods.

"In case a tire-user returns a worn-out tire to the manufacturer asserting that he has only obtained 3,000 of its guaranteed 6000 miles, and the manufacturer's adjuster alleges that the worn-out tire has had at least a 4,500 miles usage, the user has no written or contractural basis for legal action. The only thing he can do is to write letters to the tire company to persuade them to believe that their adjuster was in error and to reopen the case. These letters, tire users have told us, are frequently futile. Users of tires guaranteed by the National Surety Company on the other hand, have a court of appeal to which they can present all claims against the company for re-adjustment. Every user of a tire guaranteed by the National Surety Company who questions the fairness of an adjustment under a tire company's guarantee can write to the Tire Guarantee Department of the National Surety Company, and our Department will take up the case with the tire company and make sure that all features of the specific situation reach the proper officials.

"As a second reason for issuing the National Surety Company's tire guarantee is that tire companies are constantly increasing. New ones spring up every year in this country, and European manufacturers send tires from abroad. Tire-users do not know and trust these new tire makers, many of whom are, however, entirely reputable and manufacturers of splendid tires.

"Our guarantee will be a great business boon to these new tire makers, since it will put the name of our great financial institution behind their goods.

"A third reason for establishing our tire guarantee is that in case a tire company should actually fail, tire users with claims would be reimbursed by us. We regard the actual failure of tire companies as a remote contingency. Nevertheless, it is one which should be foreseen and covered.

"Our new tire guarantee will cost the tire makers little. It will tend to bring them business from our 1,000,000 surety bond holders and our 14,000 representatives.

"There has been a certain amount of complaint among tire-users regarding their experiences with adjusters of the manufacturers. Our guarantee is partly the result of this dissatisfaction.

"Approximately 30,000,000 automobile tires will be manufactured in the United States this year. About 24,000,000 of these will be guaranteed. The National Surety Company does not expect to guarantee all these 24,000,000 tires. It will guarantee merely those made by reputable manufacturers."

W. M. Milner Accepts Position with Bergougnan

William MacKone Milner has resigned as Editor of THE RUBBER AGE AND TIRE NEWS to accept a position as Assistant General Sales Manager of the Bergougnan Rubber Corporation, Trenton, N. J. Mr. Milner started in his new capacity on August first.

Mr. Milner goes to his new position with the well wishes of the Gardner-Moffat Company organization and the host of friends he has in the rubber industry. Always a fine mixer, a good fellow, capable and industrious, he is certain to make a success with the Bergougnan Company as he has done in his other lines of effort.

Mr. Milner was born in Lafayette, Indiana, on June 3, 1887, and was educated at Ford School in that place. His education was completed in colleges in France and England, to which places he went in early youth.

His first business experience was with a tourist agency in London. Later he engaged in the advertising and marketing of various products in Europe, including machinery, automobiles, specialities, tires and mechanical rubber goods. He also introduced Overland cars into France through Th. Pilter & Company, Paris.

In 1914 he returned to the United States and entered the employ of the H. J. Koehler Company in New York City, distributors of Hupmobile and Grant cars and manufacturers of the Koehler Motor trucks. Mr. Milner started as retail salesman and was soon promoted to the position of road salesman in the wholesale department with headquarters at the Koehler factory in Newark, N. J.

In 1915 he became Foreign Editor of *The India Rubber World*, New York, from which position he entered the employment of the Willys-Overland Company in the commercial car department, Eastern Division.

When THE RUBBER AGE AND TIRE NEWS was started, at the beginning of 1917, Mr. Milner was induced to help organize the paper, later becoming Editor. He has been Editor of this paper up to the present time and it is to him that the position which THE RUBBER AGE AND TIRE NEWS now holds in the rubber field is due. The success of that paper has been assured by the constant efforts of Mr. Milner.

The Bergougnan Rubber Corporation is a subsidiary of the Societé Genérale des Establissements Bergougnan, Clermont-

(c) *Underwood & Underwood*
W. M. MILNER

Ferrand, France. This company, as announced in the July 10 issue of this paper, has acquired the DeLion plant in Trenton, with adjoining property to provide for expansion. The Bergougnan tires are guaranteed for 6,000 and 8,000 miles respectively for the fabric and cords. This concern is the first tire company to announce that their mileage guarantees are certified by a bonding company, The National Surety Company, as explained in another column of this issue.

While in Europe Mr. Milner investigated and reported on more than 300 industries and merchandise, marketing and advertising propositions. This experience, together with his practical sales promotion experience and the knowledge of the tire industry gained as an editor should prove of inestimable value in his new undertaking.

City Auto Tire Enlarging

The City Auto Tire & Supply Company, 2415 Chester Avenue, Cleveland, Ohio, has had plans prepared for the construction of a 40 x 137 ft., 1-story addition to its plant. The plans were prepared by the G. S. Rider Company, architects, 620 Century Building, Cleveland, and it is estimated that the improvements will cost $25,000.

Northern Rubber Company

The Premier Rubber Companies, Guelph, Ontario, Canada, has changed its corporate name to the Northern Rubber Company. Plans are in hand to construct a four-story, 80 by 200-ft. factory where rubber boots and shoes will be manufactured.

Happenings in the Trade

New Firestone Research Chemist—W-S-M Transmission Charts Are Distributed—New Rubber Heel Nails—Keystone Re-elects Directors and Officers—Erie Installing Additional Machinery

New Rubber Heel Nails

A new nail of interest to the rubber heel trade known as the "Klean Kutt Kup Head Rubber Heel Nail" is one of three newly designed nails just placed upon the market by the United Shoe Machinery Corporation, Boston, Mass. The "Kup Head Nail's" distinguishing feature is that it has a conclave or cup-shaped head which conveniently holds the nail set while the nail is being driven and is considered much more advantageous than the usual oval top or flat-head nail which has been used heretofore. Other features of this nail are that it has a center tack point and when driven always clinches with a curl, giving it superior holding powers. The cupped head makes it possible to center the nail set and enables the operator to drive the nails straight and solidly upon the washer of the heel without having his set slip. The corrugations on the shank are also deeper than possible to produce on a wire nail, thereby making it additionally strong as a holding nail.

The other two nails of interest to the trade are the "Klean Kutt Rubber Toplift Nail" and the "Klean Kutt Wood Heel Attaching Nail", which have been designed to fill the modern needs of shoe repairers and manufacturers.

Keystone Re-elects Officers

At the annual meeting of the stockholders of the Keystone Tire and Rubber Company, held August 1, 1919, the following were re-elected as directors for the ensuing year: L. W. Lissberger, Joel Jacobs, S. Bernheim, N. J. Miller, J. Lichtenstein, B. Lissberger and W. Loewenthal.

At the organization meeting of the new board of directors the following officers were re-elected: President, L. Walter Lissberger; Vice-president, S. Bernheim; Treasurer, Joel Jacobs, and Secretary, Walter Loewenthal.

Increase Capital

The Rubber Tire Supply Company, Springfield, Mo., has increased its capital stock from $10,000 to $20,000, according to a report from that city. C. E. Randall is chairman of the board of directors of this company, and F. S. Bauersfeld is its secretary.

Newman in Larger Quarters

The Newman Tire & Rubber Company, New York City, has removed its general offices and storerooms to 244-246 West 54th Street, that city, where it will have more room for its growing wholesale and retail tire business.

Jenckes to Add to Mill

The Jenckes Spinning Company, 356 Barton Street, Pawtucket, R. I., manufacturer of tire fabrics, will build a $20,000 addition to its plant on Weeden Street, that city.

North Star Rubber to Build

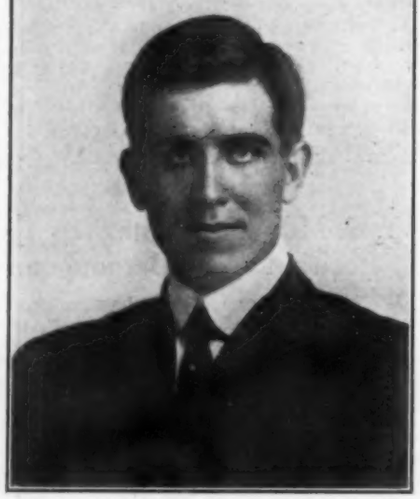
The North Star Rubber Company, Michigan Avenue, Sheboygan, Mich., will build a two-story, 60 x 90-ft., factory at 816-20 Michigan Avenue, that city. It is estimated that the construction will cost $35,000.

New Firestone Research Chemist

Norman A. Shepard has assumed the duties of research chemist for the Firestone Tire and Rubber Company, Akron, Ohio. He succeeds John B. Tuttle, who has gone to Plant No. 2 as chief chemist.

Dr. Shepard is an alumnus of Yale University. He was graduated from the Yale-Sheffield Scientific School in 1910 with the degree of Bachelor of Philosophy, and pursued three years' post graduate study, receiving his Doctor of Philosophy in 1913. His major was organic chemistry.

Dr. Shepard is well known in the scientific world. From 1913 until the present



NORMAN A. SHEPARD

time he was a member of the faculty of his Alma Mater. In addition to the activities of professor, he published a number of articles in the Journal of the American Chemical Society between the years 1912 and 1917. These publications dealt with the formation of new combinations with a view to preparing new drugs. It so happened that the substances involved were, in general, closely related to some of the agents used to accelerate vulcanization; and, as his investigations in organic chemistry have been largely concerned with materials involved in the manufacture of rubber, it is but a short step in Dr. Shepard's case from the lecture room to the industrial laboratory.

He has also engaged in industrial research work of various kinds. Last summer, for example, he was detailed on high explosives at Bound Brook, New Jersey, where a plant was being erected for the United States Government. It was in recognition of his research ability that Dr. Shepard was, in 1910, elected to membership in the Society of the Sigma Xi, which is a national honorary organization of men and women interested in original scientific research.

John B. Tuttle, whose place Dr. Shepard is taking, will have charge of chemical investigation and development at Firestone Plant No. 2. A complete laboratory is being installed and equipped there for the purpose of specializing in the 30 x 5½ in. tire, to the production of which Plant No. 2 will for the present be entirely devoted.

W-S-M Transmission Charts

The Wellman-Seaver-Morgan Company, Cleveland and Akron, Ohio, engineers and manufacturers of rubber working machinery, have just received from the printers their Bulletin No. 22, which does not advertise any of the company's product but simply contains valuable engineering data prepared by the engineers.

Bulletin No. 22 contains charts giving the relations in any shaft between power, shaft diameter, torsional stress, and speed. These charts enable one, given the power, speed, and allowable torsion stress, to determine the shaft diameter suitable for a transmission; given the shaft diameter, power and speed, to determine the torsional stress; given the power, allowable torsional stress, and diameter of shaft, to determine the speed; given the speed, allowable torsional stress, and shaft diameter, to determine the power. It should be of real value to rubber factory mechanical engineers, and can be obtained on request from its publishers, free of charge.

V. D. L. Cord Tires

The Van der Linde Rubber Company, Limited, Toronto, Canada, announces that it is manufacturing the only Canadian-made cord tire for light cars. This new tire, which is known as the "VDL Radio Cord" is made in all sizes from 30x3½ to 37x5 inclusive, the 30x3½ and 31x4 sizes are made in the clincher type. The tires are hand-made and every size is said to be a supersize.

The Van der Linde Rubber Company, Limited, also makes "V.D.L." red and grey laminated inner tubes, built up ply by ply by hand.

Northern Rubber Awards Contract

The Northern Rubber Company, Limited, Guelph, Ont., Canada, has awarded the contract for a 4-story, 800x200-ft. factory to be erected on Metcalf Street, that city. This plant will cost approximately $100,000, and will be devoted to the manufacture of rubber boots and shoes.

Stokes Rubber Expanding

The J. Stokes Rubber Company, Taylor Street, Trenton, N. J., manufacturer of hard rubber goods, has awarded the contract for a one-story, 50x100-ft. addition to its plant. It is estimated that the improvement will cost $8,500.

Advance to Build

The Advance Rubber Company, 1717 Eighth Avenue, New York City, will build a one-story 120x130-ft. factory on Gardner and Flushing Avenues, Brooklyn, which will cost approximately $75,000.

Erie Installing Machinery

Machinery is being rapidly installed in the plant of the Erie Tire & Rubber Company, Sandusky, Ohio, of which H. H. Forrest is superintendent. C. W. Briggs, formerly of Barberton, Ohio, is the master mechanic in charge of the installing work.

The Erie Tire & Rubber Company is capitalized for $1,000,000, half preferred and half common stock. It is reported that about $500,000 of this stock has already been sold.

Less Disposition to Experiment

Judging from the heavy demand for high quality tires, and particularly cord tires, motorists are less disposed than formerly to "try anything once."

With one eye on the motoring world and the other on the tire manufacturing centers, the observer sees a strong and constantly increasing demand for high grade tires and a hastening on the manufacturer's part to meet it.

In Akron, the hub of the rubber industry, some plants have gone in solely for the manufacture of high grade tires. Mr. Firey, president of the Star Rubber Co., in commenting on the situation, remarked: "Here in the Star factory we have never manufactured any but tires of the best quality, regardless of price, in the conviction that these are the tires motorists really want."

The Star Rubber Co. is one of those specializing in hand-made fabric and cord tires. The recent enlargement of their plant appears to be a vindication of their belief that it pays to make a thing as good as human hands can make it.

It's an interesting commentary on the trend of buying—not cheap in the first place, but economical in the end. Good merchandise will go far towards lowering the cost of living. The question in automobile circles today is not "how much?" but "how good?" And the representatives of the Star Rubber Co. the country over, as well as the local men, all concur in their experience with tire buyers in this regard.

New International Gray Tube

The International India Rubber Corporation of South Bend, Ind., announces the manufacture of a new gray tube not heretofore manufactured by them. The prices are as follows:

28x3	$3.10	35x4	$5.15
30x3	3.35	36x4	5.50
30x3½	3.45	33x4½	5.95
31x3½	3.50	34x4½	6.10
32x3½	3.75	35x4½	6.15
		36x4½	6.45
31x4	4.50	37x4½	6.75
32x4	4.60		
33x4	4.80	35x5	7.45
34x4	5.00	37x5	7.75

Pennsylvania Makes New Decrease

Announcement was made on July 20 of an additional decrease in prices on Pennsylvania Vacuum Cup Tires and "Ton-Tested" Tubes varying from ten to twenty per cent lower than the old prices. This price revision was due, according to the announcement by the Pennsylvania Rubber Company, to "a modern plant developed through its own earnings, an organization built from the inside out, with closest co-operation in every department of the business, together with an economical selling plan."

The mileage basis on which the Pennsylvania tires are adjusted are 6,000 miles for the Vacuum Cup Fabrics, 9,000 miles for the Vacuum Cup Cords and 9,000 miles for the Channel Tread Cords.

The new prices are as follows:

Size.	Vacuum Cup Casings, Fabric.	Vacuum Cup Casings, Cord.	Channel Tread Casings, Cord.	"Ton Tested" Tubes, Regular.	"Ton Tested" Tubes, Extra-Heavy Cord Type.
30 x 3	15.70	....	....	2.40	3.00
30 x 3½	20.10	32.75	30.50	2.80	3.50
32 x 3½	23.70	36.45	33.95	3.30	4.15
31 x 4	30.00	....	....	3.95	4.95
32 x 4	30.55	46.30	43.10	4.10	5.15
33 x 4	32.25	47.55	44.25	4.30	5.40
34 x 4	32.90	48.80	45.30	4.45	5.55
32 x 4½	42.45	52.15	48.60	5.25	6.55
33 x 4½	44.25	53.55	49.80	5.40	6.75
34 x 4½	44.60	55.00	51.20	5.55	6.95
35 x 4½	46.35	56.20	52.40	5.65	7.05
36 x 4½	46.90	57.65	53.65	5.85	7.30
33 x 5	54.30	65.15	60.70	6.50	8.15
35 x 5	57.10	68.30	63.70	6.75	8.45
37 x 5	60.10	71.40	66.60	7.00	8.75

Oklahoma Mentioned as Rubber Center

Oklahoma will be the leading State in the West for the manufacturing of rubber products within the next few years, according to A. J. Pennington, superintendent of the U. S. Compression Inner Tube Company, a corporation building a tire and tube factory on the Sand Springs road near Tulsa.

Mr. Pennington, who is a well known rubber expert, arrived in Tulsa recently from the East to take charge of all manufacturing departments of the new tube company's organization. He formerly was superintendent for the Lee Tire & Rubber Company, for which he built a large factory. He also has been identified with many other leading rubber companies throughout the United States.

"There is no better place in the country than Oklahoma for the development of the rubber industry," said Mr. Pennington. "With the advantages of all the natural resources at our door there is no reason why a rubber factory in this State should not be a great success.

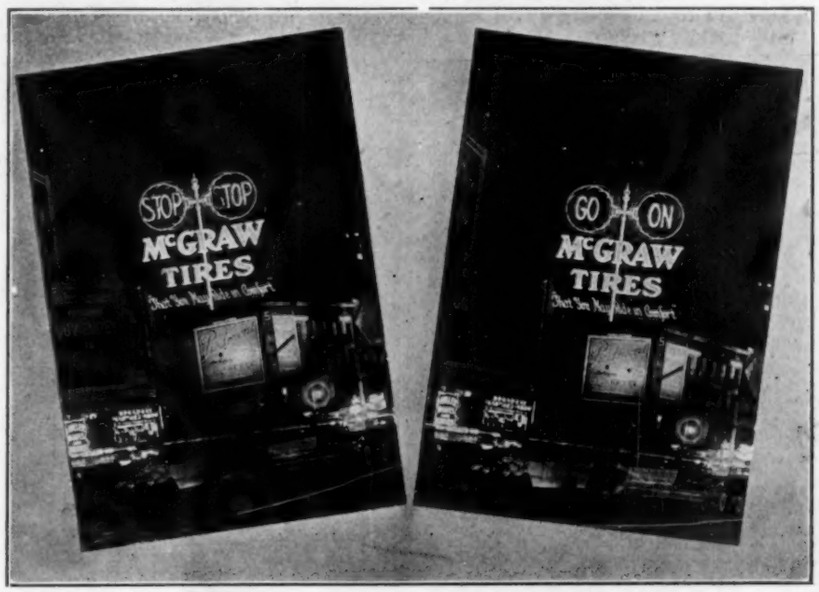
"Final plans for the U. S. Compression Inner Tube Company's first factory unit have been adopted, and we shall make every effort to manufacture our puncture-proof inner tubes and automobile casings at the earliest date possible. We are planning a production of 1,000 tubes and 500 casings a day for the first year, with the view of increasing this output during the second twelve months when the plant opens."

McGraw Sign on Broadway

High above the rush and bustle of busy Broadway looms the spectacular "Traffic Signal" electrical display that advertises McGraw tires.

As though it were operated by a gigantic but invisible traffic "cop," this huge semaphore or "traffic signal" design, worked out in brilliant and flashing electric lights, first admonishes Broadway to "Stop, Stop!" Then as Broadway stops it whirls again and the throngs are advised to "Go On McGraw Tires, that You May Ride in Comfort!"

Of course, Broadway is accustomed to spectacular electric advertising displays, but when the current was turned on the big McGraw display a few weeks ago even Broadway gasped in awe and admiration and marvelled greatly.



First Flash Second Flash

Spectacular McGraw Sign on Broadway

The photographs of this display can give only a very faint idea of its effectiveness and beauty. The structure itself is 45 feet high by 45 feet long. By rule of thumb that would mean that the framework is equal in height to a building four and one-half stories high. The best indication of the size of this structure may be had in the photograph taken in the daytime showing the electricians at work wiring the display. They are so small that it takes a close view to see them at all, and they look like insects in a great spider's web.

This display is on the southeast corner of Broadway at Forty-sixth Street (Longacre or Times Square), where throngs constantly pass it without stop or intermission not only all day, but during the wee small hours of the morning as well.

It is not an exaggeration to say that seventy-five per cent of the effect of this advertisement is national in character, for it is estiamted that there are 600,000 strangers in New York every day.

Within a stone's throw of this display are to be found a majority of the first class theatres, restaurants, cafes, cabarets and hotels of the city. This beautiful display was erected by the O. S. Gude Company of New York, who have conceived and erected nearly all of the spectacular electrical advertising on Broadway.

Personals of the Trade

Doty Joins Frazar—Black Becomes Superintendent at Dayton—Chatfield Joins McGraw in New York—T. H. Rieder Elected President of Ames-Holden McCready Co., Montreal

New Canadian Rubber Companies

Talmon H. Rieder, formerly president of the Canadian Consolidated Rubber Company, limited, Montreal, P.Q., Canada, was recently elected president of the Ames-Holden McCready Company, Montreal, which manufactures footwear, and announces the formation of two new companies for manufacturing rubber products in Canada. The new concerns are: The Ames-Holden Tire Company, Montreal, Quebec, which has just been incorporated at $3,000,000 to manufacture automobile

T. H. Rieder

tires and accessories; and the Mount Royal Rubber Company, Montreal, Quebec, capitalized at $500,000, to manufacture rubber tires and other kinds of rubber goods.

The incorporators of the Ames-Holden Tire company are Talmon H. Rieder, Douglas L. McGibbon, Stephen J. LeHuray, and others. Property has been purchased at Kitchener, Ontario, Canada, where a factory will be built.

The incorporators of the Mount Royal Rubber Company are Talmon H. Rieder, Douglas L. McGibbon, Charles H. Ancrum, and others. Mr. Rieder is president of this company, which is planning to erect a $100,000 factory.

To Make Cord Tires

The Prospect Tire & Rubber Company, which was recently incorporated and has offices at 225 Delaware Avenue, Buffalo, N. Y., is reported to be planning to erect a plant at Prospect, N. Y., where cord tires will be manufactured and sold direct to the consumer.

This new company has an authorized capitalization of $500,000, of which $300,000 is common, and $200,000 preferred stock. The officers are Y. T. Barnes, president; J. H. Prendergast, vice-president and J. L. Rosenblatt, secretary and treasurer.

H. S. Doty Joins Frazar

H. S. Doty, chief chemist of the Manhattan Rubber Manufacturing Company, Passaic, N. J., from 1905 to 1917, has recently become associted with Frazar & Company, New York City, where he is in charge of important research work in connection with the products supplied by Frazar & Company to the rubber trade.

During the war Mr. Doty was in the Gas Defense Division, Chemical Warfare Service.

It is interesting to note that Frazar & Company began the manufacture of sulphuret of antimony in 1915 in Binghamton, N. Y., and rapidly outgrew their factory facilities there. Somewhat over a year ago they purchased a large factory in Mellenville, N. Y., anticipating ample room for expansion for a considerable period of time. They have now reached their limit of production with their present equipment and have recently purchased an adjoining ten acres of land and are figuring on additions and new machinery which when installed will enable them to at least double their present capacity.

H. L. Smith in Philadelphia

H. L. Smith, formerly of mechanical sales department of the Detroit, Mich. Branch of The Republic Rubber Company, Youngstown, Ohio, has been transfered to the Philadelphia district, with headquarters at 806 North Broad Street, Philadelphia, Pa.

Mr. Smith is an old rubber man having been with the rubber industry for about twelve years.

Black Dayton Superintendent

Joseph J. Black has been made factory superintendent of the Dayton Rubber Manufacturing Company, Dayton, Ohio, to which he came in 1917 as a designing engineer.

Mr. Black served with the Goodyear Tire & Rubber Company, Akron, Ohio, for eight years, during six of which he was employed in designing and planning not only tires, but also factory equipment and factory methods.

H. W. Chatfield Joins McGraw

H. Wheeler Chatfield, for seven years secretary and treasurer of Chatfield's Auto Supply, Inc., New York City, of which his father is owner, has severed his connection with that concern to become credit manager of the New York branch of the McGraw Tire & Rubber Company, Cleveland, Ohio.

Rainbow Tire Acquires Factory Site

The Rainbow Tire & Rubber Company, Delaware, Ohio, has acquired a factory site of 24 acres of land between the Pennsylvania and Big Four railway lines, and is planning a two-story, 100 x 300-ft., factory. The officers of this new company are: Charles E. Ross, president; H. L. Gilbert, vice-president; C. A. Morrison, treasurer; George E. Caylor, secretary and attorney. The directors include the above and H. F. Fegley and C. A. Wagoner.

L. A. Llewellyn Promoted

It has been announced by Harvey J. Woodard, Vice-President and General Manager of Sales, that Mr. L. A. Llewellyn has been appointed district manager of the Cleveland branch of the Republic Rubber Company, Youngstown, Ohio, with offices at 1745 Euclid Avenue.

Mr. Llewellyn will have full charge of the Cleveland branch and Cleveland branch territory which embodies the greater part of the state of Ohio.

Llewellyn is an experienced rubber man,

L. A. Llewellyn

having spent many years in the manufacturing end before associating himself with the Republic where he has been salesman for the last seven years.

His territory has consisted of the greater part of the state of Ohio, where he is well known among the tire trade.

Henderson to Go to Columbus

That the Henderson Tire & Rubber Company, Bucyrus, Ohio, manufacturers of "Henderson" and "Bucyrus" tires and inner tubes will remove its plant to Columbus, Ohio, has been announced by C. O. Henderson, president and general manager of the company.

Two and a half acres of land have been acquired on Goodale Avenue, Columbus and contracts have been let calling for the completion of the factory buildings by September 15. Mr. Henderson expects to have the new plant in operation by October 1. The lease on the Bucyrus plant expires June 1, 1920, and it will continue to be operated by the Henderson Company until that date. The new plant will have a capacity of 2,500 tires a day, and the company's sales offices, which are now located in Chicago, Ill., will be transferred to Columbus.

Mohawk Improvements

(Special Akron Correspondence)

Construction work is nearing completion at the Mohawk Rubber Company's factory on a new addition to the plant.

This addition is in the form of a new wing which will house portions of the Cord tire building and curing departments.

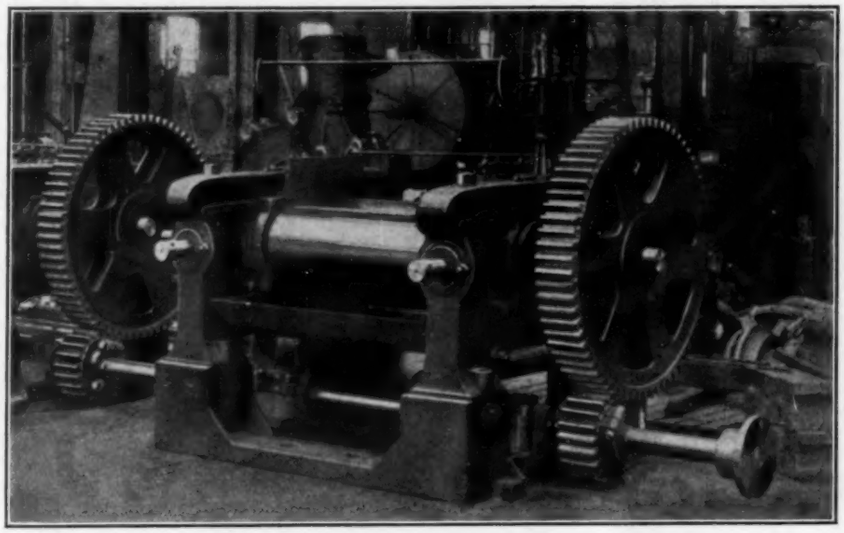
A new branch has just been opened by the Mohawk company at Dallas, Texas. The opening of this branch resulted from a great increase in business developed in that terrifory.

New Rubber Machinery

Wellman-Seaver-Morgan Are Marketing a New Rubber Mixing Mill with a Number of Distinct Advantages—A New Thickness Gauge Is Designed by the Bureau of Standards

The W-S-M Rubber Mixing Mill

A mixing mill recently put on the market is that of the Wellman-Seaver-Morgan Co., Cleveland, Ohio, for which several distinct advantages are claimed, including: a raised bed plate so that the jackshaft may run below the floor, self-contained bearings of the jack-shaft on the base plate, removable rolls and latest safety devices.



WELLMAN-SEAVER-MORGAN MILL

The mill is made in 48, 60 and 84-inch sizes and is furnished with the proper ratio of drive gear to pinion to suit the specified back roll speed or existing jack-shaft speed. Drive pinion is furnished either solid or split with cast or cut teeth. Where no magnetic clutch brake is used, an automatic jaw clutch to operate from the safety lever is furnished.

The frame and cap are made of semi-steel, the frame being cored out and heavily built to withstand all loads and shocks to which it may be subjected. The cap is held on the frame with large steel studs and the two frames are tied together with steel rod separators.

The rolls are made of cast iron with turned chilled surfaces. The end of each roll is counterbored and has a packing box for steam and water connection. The space between the rolls can be adjusted to any desired width within working limits by large forged steel adjusting screw acting on a breaking cup. The breaking cup will break efore any excess pressure is subjected to other parts of the machine.

Each roll is carried in cast iron shells lined with hard bronze, pockets being provided to carry an ample supply of grease. The bearings on the 84-inch mill are cored out for water cooling.

A safety device is bolted on top of the frame cap, which can be connected to a safety jaw clutch or magnetic clutch brake.

The slush pan and cover are bolted to brackets on the side of the frame. The slush pan is cast iron and the cover sheet steel. This permits the connecting gears to run in oil at all times.

The rolls are connected with two cast steel gears with either cut or cast teeth of special profile suitable for this class of work.

Each roll is fitted with a packing box for steam and water connection. All the parts subject to wear or corrosion are cast bronze.

The main drive gear is made of semi-steel and the pinion of cast steel with either cut or cast teeth. Herringbone gears can also be furnished if required.

The Wellman-Seaver-Morgan Company manufactures complete rubber mill equipment, including base plates, bearings, shafting couplings and herringbone reduction gears.

Bureau of Standards Gage

The illustration shows a gauge designed by the Bureau of Standards for such purposes as do not require extreme accuracy. The roller and plate immediately beneath

BUREAU OF STANDARDS THICKNESS GAUGE

are of hardened steel. Special curvature is required at the contact surface between the dial spindle and arm supporting the roller. The nut at the extreme left permits pressure regulations.

Akron Rubber Stock Prices

(Special Akron Correspondence)

The rapid rise of Firestone common on the local market was the feature of the past week. This stock rose 16½ points in one day, selling over 180. It remained at that mark even after the company made its announcement of a plan to increase the capitalization five-fold. There were rumors of an extra dividend, but no brokers seemed to have definite facts and the Firestone announcement was silent on that phase of the financial arrangement.

Other stocks with the exception of those listed on the New York exchange, continue to show strength and higher prices are being paid for most issues.

Following are the quotations posted on the Akron exchange August 2:

	Bid.	Asked.
American R. & T. com	50	..
American R. & T. pfd	102½	..
Amazon Rubber	150	160
Firestone com.	176	180
Firestone pfd.	99½	100½
General com.	450	..
General pfd.	99	100
B. F. Goodrich com	79	81
B. F. Goodrich pfd	102¾	103½
Goodyear com.	340	345
Goodyear 1st pfd	106¾	107
Goodyear 2d pfd	107¼	107¾
India Rubber	215	223
Kelly-Springfield	130	132
Mason com.	24½	..
Mason pfd.	87	..
Marathon com.	..	55
Miller com.	223	226
Miller 1st pfd.	103½	104¼
Miller 2d pfd	104¾	105¼
Mohawk com.	305	..
Mohawk pfd.	100	110
Portage com.	148	151
Portage pfd.	97½	98
Republic com.	7	7½
Republic 1st pfd	..	96
Republic 2d pfd	..	93
Rubber Products	148	153
Star Rubber com	300	350
Star Rubber pfd	..	98½
Swinehart com.	86	90
Swinehart pfd.	88	92

Building Machine Shop

John E. Thropp's Sons' Company, Lewis Street, Trenton, N. J., has awarded the contract for the erection of a 2-story machine shop. It is estimated that the improvement will cost about $65,000.

Kelly's Cumberland Plant

Rapid progress is being made with the construction of the first unit of the large rubber tire manufacturing plant that is being erected in Cumberland, Md., for the Kelly-Springfield Tire Company, New York City, according to a report from Cumberland.

Apollo Tire to Build

The Apollo Tire & Rubber Company, 3962 East 93rd Street, Cleveland, Ohio, is reported to have purchased a site and to be planing the construction of a 2-story, 80 x 128-foot factory, to cost approximately $30,000.

Ideal to Enlarge Plant

The Ideal Tire & Rubber Company, East 17th Street and Euclid Avenue, Cleveland, Ohio, has acquired a site on Warner Road and plans to build a 3-story, 100 x 200-foot addition to its tire plant, at an estimated cost of $125,000.

Bovis Goes to McGraw

G. E. Bovis, who recently resigned as manager of the offices of the Sioux Falls, S. D., branch of the Fisk Rubber Company, Chicopee Falls, Mass., has joined the forces of the Des Moines, Iowa, branch of the McGraw Tire & Rubber Company, East Palestine, Ohio.

Personals of the Tire Trade

Changes and New Appointments in the Tire Industry—McGraw Has New Cleveland District Manager—New Branch Manager at Des Moines for Goodrich—Other Changes

HENRY STADT, well known in the western Michigan tire industry, is now connected with the Akron Tire Corp., in Grand Rapids as assistant sales manager. Mr. Stadt has been in the tire game about eight years in and around Grand Rapids.

W. M. MCKENNA has been appointed manager of the New Orleans branch store of the Atlas Tire Company, succeeding H. C. Going, resigned. Mr. McKenna has inaugurated an aggressive policy and intends to move into larger quarters, and make the local Atlas branch one of the largest in the chain of stores.

The new manager formerly was with the same company at the Kansas City home offices. Previous to that he was with the B. F. Goodrich Rubber Company and is reckoned as one of the most progressive young men in the tire industry today.

F. F. TILDEN, who for ten years has been with the Goodyear Tire & Rubber Co., is now located in Cleveland as district manager for the McGraw Tire & Rubber Co. With him, but with Columbus as headquarters, is C. F. Jones, also a former Goodyear salesman. Mr. Jones states that he is meeting with success in the sale of McGraw tires in Central Ohio and that several Columbus dealers have taken on this line. Tilden formerly served as manager of the Columbus branch of the Goodyear firm.

C. A. BECK, formerly with the Houston Tire and Vulcanizing Company, has opened a tire and accessory store at 1006 Fannin Street, Houston, Texas. The new business is called the Acme Tire and Vulcanizing Company. Distribution for the Century Plainfield tire has been secured. Mr. Beck is well known in automobile circles, having been in Houston for the past four years, and previous to that time, connected with a large rubber concern in Akron, Ohio. The new company is thoroughly modern in its equipment for vulcanizing and retreading tires.

J. I. OVERS has been appointed new manager for the Goodrich branch at Des Moines, Ia. Mr. Overs was formerly with the Goodrich company at Wheeling, West Virginia and at St. Louis. He has had a wide experience in all departments of the sales end of the business.

W. EARL MCCLINTICK, office manager for the Hawkeye Tire and Rubber Company at Peoria, Ill., was recently married to Miss Myrtle Cash. Mr. McClintick was formerly with the Goodyear company at Berkeley.

T. C. MONROE, former manager of the Goodrich branch at Des Moines, Ia., has been transfered to Chicago, where he will handle special sales work for the company.

CHARLES W. HARRIS has been put in charge of the San Francisco offices of the Hewitt Rubber Co. of California, a newly incorporated organization. Mr. Harris has been identified with the rubber trade on the coast for the past ten years.

GEORGE F. SHEA was formerly cashier of the Seattle branch of the B. F. Goodrich Company, and when we declared war he promptly enlisted and gave his services, as did the millions of other young Americans, to our cause.

When the armistice was signed, and upon his release from military service, W. D. Albright, manager of the B. F. Goodrich Rubber Company, had a position waiting for Sergeant Shea as traveling salesman for the Goodrich Company in the state of Montana.

I. T. LEE has become a new member of the Goodyear Tire & Rubber Co. sales force. Lee is well known in Oakland. During the flu epidemic last fall he came into prominence by reason of his activities as a volunteer worker in the temporary hospital at the Auditorium.

MARTIN K. WHALEN, formerly special representative for the Century-Plainfield Tire Co. has been appointed southern representative for the International India Rubber Co., South Bend.

STEWARD SLOSSON, formerly coast representative for Firestone motor-cycle tires has been appointed Pacific Coast manager of the Rubber Products Co., Barberton, Ohio.

A. G. MCCLURG has been appointed factory manager of the Carlisle Cord Tire Co., Andover, Mass. He is also a director and a member of the executive board.

WALTER A. CARLSON, for several years chief engineer at the Tacoma, Wash., city hall, has allied himself with the M. K. Martin Company, dealers in motor accessories and tires. Mr. Carlson has a wide acquaintance in Tacoma and neighboring communities and many friends will be glad to see his smiling face along automobile row.

WILLIAM H. YULE has resigned as manager of Mechanical Sales for the B. F. Goodrich Co., to retire to his fruit ranch near Santa Barbara, Cal.

FRANK S. GRIEGSINGER has been appointed manager of the St. Louis branch of the Goodyear company. He formerly had charge of truck tire distribution in the southwest.

AVERY C. HAMMOND will sail in July to New Zealand where he will handle the mechanical goods department for the Goodyear Co. Mr. Hammond has been manager of the Columbus branch for the past 6 years.

H. L. HALL has resigned as Chicago branch manager of the Swinehart Tire and Rubber Company to take charge of the Chicago office of the Troy Carriage Sunshade Company, manufacturers of Troy windshields and specialties.

WILLIAM V. LOGAN has been appointed manager of pneumatic truck tire sales for the United States Tire Company.

C. K. WHIDDEN, formerly assistant manager of the motor truck tire department of the United States Tire Company, has been made manager of the solid motor truck tire sales of the company.

D. D. F. YARD, sales director of the export division of the Pennsylvania Rubber Company, Jeannette, Pa., will sail for Honolulu, en route to Australia, Straits Settlement, New Zealand, China, Japan, India and South Africa in the interests of the company.

A. E. SWANSON has been engaged for the past few months in organization work at the plant of The Firestone Tire and Rubber Company in Akron. Previous to this Mr. Swanson was director of the bureau of research and statistics of the war trade board.

F. A. SEIBERLING may, according to reports, enter the political field as Republican candidate for United States Senator to succeed Senator Atlee Pornerene, Democrat, whose term expires in 1923.

R. BUESCO GARCIA has left the Goodyear plant after nine years' service to take charge of the distribution of Goodyear products in Mexico. His headquarters will be in San Antonio, Texas. He is a Mexican by birth.

L. P. MANGER, of the Akron-Biltwell Tire and Rubber Company, has been elected president of the Barberton (Ohio) Chamber of Commerce.

JOSE J. FIGUEROA, the largest dealer in automobiles, tires and accessories in San Juan, Porto Rico, recently visited the plant of the Firestone Tire and Rubber Company to arrange for increased shipments of Akron tires to his island home.

W. S. DELLETT, former Texas Representative of the Rubber Products Company, Barberton, Ohio, has been appointed northwestern manager with headquarters at Minneapolis, Minn., and takes up his duties immediately.

R. M. GARVEY, former sales supervisor in the Middle West for the Ajax Rubber Company, Trenton, N. J., has been appointed Middle West manager for the Rubber Products Company, Barberton, Ohio, with headquarters in Chicago, Ill.

STEWART SLOSSON, recently representative of the Federal Rubber Company, Cudahy, Wis., for Connecticut, and formerly Pacific Coast representative for the motor-cycle tire department of the Firestone Tire & Rubber Company, Akron, Ohio, has been appointed Pacific Coast representative for the Rubber Products Company, Barberton, Ohio.

WILLIAM WHITLOCK, for over fifteen years with the Fisk Rubber Company, Chicopee Falls, Mass., has severed his connection with that concern, and will take a vacation of several months before again entering business.

H. J. HUNTER, managing director of the Goodyear Tire and Rubber Company of Australasia, Ltd., Sydney, Australia, has returned to this country to get in touch with the latest developments in the manufacture of all tires at the Goodyear plant in Akron.

MARKETS

Manufactured Rubber Goods

NEW YORK, August 5, 1919.

Although the rubber trade as a whole is progressing along more favorable lines than a month ago, the situation is not yet up to the mark of uniformity. In point of activity the tire industry stands in an enviable position, but demand for crude, reclaimed, mechanical goods and druggist's sundries still lags.

The labor problem is a perplexing one, though the rubber industry is neither more fortunate nor unfortunate in this regard than many other industries of the country. Emigration is drawing workers from some of the plants, and reduced immigration curtails the supply of new hands. Besides, the long expected return of the railroads by the Federal authorities to private control is yet to materialize. If the pleas of organized labor are heeded the carriers will forever be operated under government ownership. This uncertainty about the final solution of the railway problem, coupled with disappointing earnings, restricts buying of mechanical equipment, but obviously these elements do not prevent supplies from becoming depleted through wear and tear. Another problem —that of furnishing Europe with credits for the purchase of goods in the United States, still hangs fire to the detriment of expansion in our foreign trade. It is intimated that pending the floating of large issues of European governmental securities in the domestic markets, some of the foreign-owned American stocks on bonds on deposit here may be sold. If the suggestion thus indicated is carried out exchange rates probably will be stabilized, even though surplus funds for buying goods may not immediately become available. Despite the drawbacks connected with the wish to develop European markets, the American manufacturer is doing fairly well with other outside buyers, and he is far from being in the position of just whistling to keep up courage.

On the contrary the American rubber industry, thoroughly cognizant of the utility of its products, looks to the future with supreme confidence. Stress is being laid upon the apparent necessity of substituting rubber for leather, which commodity now bears such an inordinately high price; upon the extensive construction of buildings in Europe as well as at home, which will require plumbers supplies and electrical insulation, and upon the prospective expansion in the consumption of automobile tires. The divorcing of the telephone and telegraph lines from governmental control also is a stimulating influence.

AUTOMOBILE TIRES

Amplified demand for pneumatic as well as for solid tires looms large. All of the leading factories are busily engaged in endeavoring to meet the urgent requirements for their products. The big automobile manufacturers are the most liberal buyers of the pneumatic tires. As the pulse beat of the nation's industries is quickening, hauling operations are increasing to the advantage of truck tires. Retreaded tires also are in strong demand, and more concerns are embarking in this business.

Though some dealers in tires continue to talk about reduced prices, those who seem to have studied the situation in its broad aspects concede that the export trade has grown or is likely to grow to such proportions as to preclude the prospects of lower prices for months to come.

Many dealers complain that July, usually the best month for trade, was disappointing as regards sales. These purveyers, both jobbers and retailers, assert that the advent of newcomers in the field has reduced the sales of the individual seller, although it is admitted that more tires than ever are being used. Some of these dealers profess to believe that the closing of many saloons has caused numerous quondum liquor men to invest money in the business of selling tires. Bicycle tires are in good demand.

MECHANICAL GOODS

Trade in conveyor belting, especially with the oil producing regions of the Southwest, is relatively favorable. But domestic demand for the general lines is not much better than fair, presumably because big outdoor construction projects are lacking. Marine specialties have been adversely affected by the recently ended strike in shipping circles. It is thought that business will improve now that many vessels will have to go into drydocks for overhauling. Hose, belting and railroad supplies are being shipped abroad in goodly volume.

DRUGGISTS' SUNDRIES

Domestic trade is light, midsummer influences acting as a damper on buying, but export trade continues to be of encouraging proportions. The Latin speaking countries of the western hemisphere are good customers. Fair sales have been made to China, especially to the hospitals that are conducted under English as well as American auspices.

HARD RUBBER

Demand for vulcanized products exceeds the capacity of the leading factories. Home trade is good, and foreign orders also tend to swell the total volume of business. Stocks here are light because many of the plants during the war were engaged in making gas masks and other essentials of war for the government. This paucity of stock may, probably will, make it difficult to supply the full needs of the foreign buyers. Absence of imports from Germany, Austria and England, which countries formerly competed with the American output, particularly in low-priced goods, are conceded to have bolstered the domestic industry. With the resumption of betterments by the telegraph and telephone lines further improvement in the demand for hard rubber is expected to ensue.

MISCELLANEOUS PRODUCTS

Trade in overshoes and rubber coats in the eastern part of the country was stimulated by the copious rainstorms that fell during the period July 14 to 23. But dealers in other parts of the country may carry relatively large stocks into the coming winter. Some of the manufacturers of overshoes are preparing to open the next selling season on December 1, depending on the weather, while Septembr 1 will see the opening of the new lines of tennis shoes. Golf balls are in excellent demand and domestic factories that put out the most popular balls are rushed to supply the urgent calls of the trade. Stocks do not tarry long with the sales agents.

RECLAIMED RUBBER

Trade is light, the only ripples being those provided by odd lot orders. This industry is banking on the fall season bringing increased activity. It is expected that the electrical trade as well as the mechanical equipment and the footwear industries will be good buyers. Prices remain stationary.

Cottons, Yarns and Fabrics

NEW YORK, Aug. 6, 1919.

Extreme activity has marked trading in cotton during the past fortnight, although, in so far as prices are concerned, the market today is practically in the same position as it was two weeks ago. During the latter part of July trading was generally slack, and there was an easy undertone prevailing due to this condition. This condition was exactly reversed, however, on August 1, when the Government report was issued, showing the condition of the crop to be only 67.1 per cent of normal, which figure was considerably below that which private advices had indicated.

Following the issuance of the Government report, the market shot up on heavy buying, the advance the first day carrying the market up 200 points, the maximum advance allowed in one day's trading. This strength continued until August 4, when a statement by Secretary Hester of the New Orleans Cotton Exchange, widely known as an expert in the market, placed the carry-over from last year's crop at 6,800,000 bales, and giving the total takings of the 1918 crop at only 10,620,000 bales. Following this report, actual conditions in the cotton crop situation were forgotten in the wild wave of liquidation which completely smashed the market. October sold off 200 points, selling at

32.30, while December closed at 32.52, a drop of 198 points from the previous close. January also sold off 200 points.

At present the outlook is very dubious. Several times in the past few weeks the talk of "profiteering" in cotton has caused prices to break at primary points, and belief in the South appears to be general that a fixed price will be put upon cotton goods by the Government, in its effort to check the high cost of living.

Export business continues active, England especially being a strong factor in the market. France and Belgium are also buying to some extent, as are the other European countries. Germany thus far has not made any extensive purchases in this country.

SEA ISLAND COTTON

Consumers on this variety are much interested in various plans for planting substitutes for the Sea Island staple, now that it is generally acknowledged that planting will be heavily curtailed by growers in the Sea Island belt. A report from the American consul at Port-au-Prince, Haiti, indicates that the Sea Island staple is being introduced there. "Lately there has been a considerable interest taken with a view to increasing the output (of cotton), and at the present time a company is being organized with sufficient capital for the purpose of encouraging the cultivation on a large scale," he writes. "It should be produced for about one-third less than in the Southern states. It is contemplated planting the Sea Island cotton, but it is doubtful whether it will be successful with this cultivation, as it only produces one crop and must be replanted every year. Any cultivation that requires much attention and labor will not succeed in Haiti at the present time."

EGYPTIAN COTTON

Reports from the Alexandria market state that the holdings of the last crop of Egyptian cotton are moving into consumption rapidly, and the entire crop will have been disposed of within a short time. Arrivals in the United States are not heavy, and consumers are using the Egyptian staple grown in the Southwest. Indications are that the new crop of Egyptian will be a good one, as early work has all been done, despite the recent revolutionary disorders in Egypt. Growers are somewhat apprehensive of a shortage of water for irrigation purposes later in the season, but are hoping for the best.

FABRICS

Firmness in all quarters of the markets for fabrics has been the dominating factor in the market, and the old story of high prices and insufficient supplies is heard all over the market. Consumers are endeavoring to book orders with the mills for fabrics for fall and spring delivery, but are meeting with little success, as manufacturers are wary of committing themselves in view of the unsettled conditions in the markets for raw materials. The mills are endeavoring to throttle speculation.

TIRE FABRICS

Dealers in tire fabrics report that there is a good demand for their products at the present time, and the market is generally firmly held in all quarters of the market. Tire manufacturers are producing at top speed to take care of the demand for tires both from the automobile manufacturers and from motorists. The low price which rubber is selling for somewhat compensates tire manufacturers for the high price of the cotton fabrics. Export demand for tires is expected to pick up shortly, and the tire fabric market is expected to benefit through this increase in demand.

HOSE AND BELTING FABRICS

There is a fairly consistent demand for hose and belting fabrics at this time, manufacturers of mechanicals and rubber specialties doing a fair volume of business. Domestic demand for belting is rather quiet at the time, but some demand for hose is reported, and the output of rubber specialties is steadily on the increase, as manufacturers who were compelled to shut off production during the period of the war resume their operations. The railroad situation is being closely watched, as it is believed that should the railroads be returned to their owners, the managements of the various systems would immediately take stock and place large orders for rubber equipment.

DRILLS, SHEETINGS AND OSNABURGS

The market is considerably unsettled at the present time, with many consumers remaining out of the market, although watching day-to-day developments with a keen eye. The fluctuations in the raw cotton market are upsetting to the trade, and activitiy in the cotton goods market is contingent upon the stabilization of the market for the raw material. Despite the fact that buyers are conspicuous by their absence in the market, prices are gradually working up.

BURLAPS

Burlap prices have registered sharp advances during the past fortnight, and importers and dealers are holding firmly for present prices, being strengthened in their position by a paucity of goods on the spot. Reports from the Calcutta market are increasingly bullish, and higher prices are expected locally as a result. Indian burlap mills are running only on part time, due to the difficulties of transportation, and there is no sizable surplus held in Calcutta.

TIRE FABRICS

17¼-ounce Sea Island, combed,	sq. yd.	1.40@1.55
17¼-ounce Egyptian, combed		1.20@1.30
17¼-ounce Egyptian, carded		Nominal
17¼-ounce Peelers, carded		.85@ .90
17¼-ounce Peelers, combed		1.05@1.15

DUCKS

Single Filling (pound basis)	lb.	Nominal
Double Filling (pound basis)		Nominal

DRILLS

37-inch	2.35-yard	yd.	.30	@
37-inch	2.75-yard		.29	@
37-inch	3.00-yard		.25	@
37-inch	3.25-yard		.24	@
37-inch	3.50-yard		.23	@
37-inch	3.95-yard		.21	@ .22
37-inch	2.00-yard Southern			@
37-inch	2.00-yard Northern			@
40-inch	2.40-yard Southern			@
40-inch	2.40-yard Northern			@
52-inch	1.90-yard Southern			@
52-inch	1.90-yard Northern			@

SHEETINGS

40-inch	2.35-yard	yd.		@
40-inch	2.50-yard		.28	@
40-inch	2.85-yard		.25½	@ .26
40-inch	3.00-yard		.25½	@
40-inch	3.25-yard		.23	@ .23½
40-inch	3.75-yard		.20	@
40-inch	3.60-yard			@
40-inch	4.25-yard		.17¾	@

Note.—In view of the unsettled conditions prevailing in the market at the present time, the prices quoted above are more or less nominal, and are not guaranteed.

BURLAPS
(Carload lots)

		Per Yard
7 -ounce	40-inch	Nominal
7½-ounce	40-inch	Nominal
7½-ounce	45-inch	Nominal
8 -ounce	36-inch	@
8 -ounce	40-inch	15.25@ 15.50
8½-ounce	40-inch	@
10 -ounce	36-inch	@
10 -ounce	40-inch	17.25@ 17.50
10 -ounce	45-inch	Nominal
10½-ounce	40-inch	17.50@ 18.00

Chemicals and Compounding Materials

NEW YORK, August 5, 1919.

Business is active in all lines and the market is steadily gaining strength as the demand for all products is accelerated by an increase in domestic and export buying. Business booked during July was not only of greater volume than during June, but was the best since the signing of the armistice. Some factors in the market declare that business was never better, and produce heaps of orders to back up this assertion. The increasing cost of raw materials of all descriptions finds no exception in the market for chemicals and compounding materials, the only markets that are really stable being the market for zinc oxide, where producers have announced that no immediate advances are contemplated.

Whereas, a short time ago, the tendency was to hold off, and buy in a hand-to-mouth manner, consumers now are scurrying around the market to place larger orders, and are more inclined to anticipate their requirements, and buy ahead correspondingly. Thus producers of several materials are well sold ahead, and have all they can do to make their production keep pace with the demand. The market for oils of various descriptions has risen to record heights under the steady flow of orders from abroad. Lithopone is extremely hard to locate on the spot in large quantities, manufacturers being well booked ahead with orders for foreign and domestic account. Production of leads, both dry and in oils, which had been sharply curtailed a short time ago, is now being speeded up to take care of the increased business coming in. While the dealers in dry colors are generally able to take care of the business offered them, dealers of colors in oils are swamped with the demand for their product.

EXPORTS

Export demand is playing a large part in the rapid expansion of the American chemical and compounding materials business, and the producers and dealers are not slow to seize this opportunity to establish a market for these American products abroad. Some still express the fear that the old German combines will re-enter the markets abroad and freeze out the American producers; thus, they are making hay while the sun shines. Adequate legislation to protect the American industry at home has been assured and the American products have already won such a foothold in South and Central American countries that the permanency of the business there seems well assured, save in Argentina, where pro-German sentiment rules. The newly-established countries of Europe are coming into American markets along with the old-established nations and business for foreign account is steadily increasing.

BENZOL

Conditions governing the spot benzol market show no change, and the price is generally held at the wide range of from 22 to 27 cents per gallon, the inside price representing the figure of the producer, while the top prices are asked by second hands. There is some little export business going forward, and producers are

thus able to dispose of some of the large stocks which they have accumulated.

LITHARGE

Demand for litharge has shown some slight improvement during the month, and the market continues unchanged at 9¾ to 10½ cents per pound in casks. Consumers continue to buy only in a hand-to-mouth fashion.

LITHOPONE

A strong call for lithopone continues, and producers have advanced prices to the basis of 7 cents per pound in barrels, and 6⅞ cents in bags. This compares with a pre-war price of 3¾ cents per pound. The raise in prices has not affected the demand however, and producers are unable to keep pace with the demand. All of the leading producers are sold up for some time ahead, demand being heavy both for domestic and the export trades.

WHITING

An improved demand for this product is noted, and the market is being steadily held under a fair inquiry from the domestic trade. The market for English cliff-stone is steady at $1.75 to $2.50, while the commercial continues unchanged on the basis of $1.15 to $1.20 per cwt. American paris white is unchanged at $1.50 and $1.75.

ORANGE MINERAL

Developments in this market are lacking, and save for a slightly increased demand, the market has ruled quiet and steady during the past fortnight. Jobbing demand continues good at quoted prices of 13¼ to 14¼ cents per pound for American, while imported is held on the basis of 15 to 20 cents.

BARYTES

Producers of barytes are having much difficulty in keeping their output on a par with the demand, and are well sold ahead as a rule. The price continues firmly held, and the lithopone manufacturers and other consumers continue to enter the market for heavy consignments. The prospect of German competition within the near future is apparently causing American producers little concern, and they are going right ahead with their production and plans as if such a thing as a German lithopone industry never existed. Reports from the Western market indicate that demand there has shown no abatement, but that the producers were being handicaped somewhat by the shortage of cars to ship their product to market.

GLUES

Rubber manufacturers are said to be steadily increasing their consumption of glues, and producers report that their business is steadily expanding in this direction. In addition to this, large export orders are coming to the New York market to be filled. The fact that foreign countries are buying in America seems to effectively dispel the fear that foreign competition here would hurt the business of American producers. The cheaper grades of glues are strongly in demand, with quotations slightly firmer, while the high grade stock is also coming in for a good call.

WAXES

Carnauba wax was weak during the past fortnight, with selling pressure in all quarters of the market. Beeswax was firmly held under a steady demand, and bayberry also held firmly under a good consuming demand. Price changes were negligible.

DRY COLORS

Business in dry colors has picked up, and dealers report that they are now booking a better business than for some time past. The demand for dry colors from the automobile and tire industry is steadily on the increase. The undertone of the entire market is showing a strengthened tone. Blacks are steadily held, with prices unchanged, and the market for blues is also steady in first hands, although some re-sale goods are offered below the market. Consumption of browns on the increase, and prices hold unchanged. Greens and reds both meet with a good call. Yellows hold steady under a fair consuming demand.

ZINC OXIDE

The tire and automobile trades are good buyers of zinc oxide in the present market, and prices are holding steady on the established basis. Producers are having considerable difficulty in keeping pace with the demand, and are falling slightly behind on some lines. Consumers are buying ahead steadily rather than risk the loss of valuable time in getting goods by cutting their orders, and buying as they go along. This policy is acknowledged as the most sound business policy at this time. Export buyers are competing with the domestic trade for supplies, and a good business is being done abroad.

OILS

Increased firmness has been noted in all branches of the oils market, and prices have sharply advanced throughout the market. Linseed oil has been marked up to record high prices, with many producers having withdrawn entirely from the market, due to the prevailing shortage of seed. All of the oil now being turned out is going on contract deliveries, and producers in many instances are behind in their deliveries, and are allotting the oil on a pro rata basis. Corn oil, both crude and refined, is quoted up in sympathy with the advancing raw material market. Rosin oil has also been sharply advanced, while the market for turpentine has gone to record high figures under the small supplies and the steady consuming demand. Pure gum spirits are firmly held on the basis of $1.48 per gallon, while wood turpentine is offered at $1.40 per gallon.

Prices Current for Chemicals, Fillers, Colors, etc.

Acetone, carlots	lb.	.13½ @	.14
Smaller lots	lb.	.15 @	.16
Accelerator, in drums	lb.	.85 @	1.00
Acids, Acetic, 50%	cwt.	6.00 @	6.50
Carbolic, C. P.	lb.	.18 @	.19
*Cresylic, C. P.	lb.	1.10 @	1.15
Muriatic, 20 deg.	lb.	1.20 @	1.40
Muriatic, 22 deg.	cwt.	1.40 @	1.60
Nitric, 42 deg.	cwt.	7.00 @	8.00
Nitric, 40 deg.	cwt.	6.75 @	7.50
Sulphuric, 60 deg.	ton	12.00 @	15.00
Tartaric, crystals	lb.	.86½ @	—
Aluminum Flake	ton	29.00 @	31.00
Aniline oil, bulk basis.			
Contract		.25 @	.27
Imported		Nominal	
Antimony, metal spot	lb.	8.75 @	—
Oxide	lb.	.09 @	.11
Sulphuret, red	lb.	.20 @	.21
Sulphuret, golden	lb.	.21 @	.22
Sulphuret, crimson	lb.	.35 @	.40
Asbestos	ton	35.00 @	45.00
Asphaltum, Egyptian	lb.	.20 @	.30
Domestic	ton	22.00 @	30.00
Barium sulphate, technical	lb.	.04½ @	.05
Sulphide	lb.	07¼ @	.07½
Barytes, prime white imported	ton	Nominal	
white, domestic	lb.	.30 @	.31
off color, domestic	lb.	.21 @	.24
Southern, f.o.b. mills		21.00 @	—
Western, f.o.b. mills		21.50 @	—
Benzol, pure, bulk	gal.	.22 @	.27
Beta-naphtol, sublimed	lb.	.55 @	.65
unsublimed	lb.	.50 @	.62
Blacks, Drop	lb.	.05½ @	.15
Ivory	lb.	.16 @	.30
Carbon, gas, cases	lb.	.12 @	.25
Lampblack, R. M.	lb.	.15 @	.45
Mineral blacks	ton	35.00 @	45.00
Blues, Prussian	lb.	.65 @	.75
Soluble	lb.	.68 @	.78
Ultramarine	lb.	.12 @	.40
Browns,			
Umber, Turkey, burnt, powdered	lb.	.05 @	.06½
American, burnt	lb.	.03½ @	.04
Cadmium sulphide, yellow	lb.	2.00 @	2.25
Carbon, bisulphide, bulk	lb.	.05½ @	.06½
tetrachloride drums	lb.	.10 @	.12
Caustic Soda, 76@78%	cwt.	3.00 @	3.20
Chalk, precipitated, extra light	lb.	.05½ @	.06½
light	lb.	.05 @	.06
heavy	lb.	.05½ @	.06
China clay, domestic	ton	8.50 @	20.00
imported	ton	19.00 @	23.50
Fossil flour	lb.	.03¾ @	.05
Gilsonite	ton	47.50 @	60.00
Glue, extra white	lb.	.35 @	.40
medium	lb.	.30 @	.35
low grade		.20 @	.25
foot stock		.13 @	.18
brown foots		.12 @	.16
common bone		.10 @	.15
Glycerine, C. P. (drums)	lb.	.19½ @	—
cans		.21 @	—
second hands		.19¼ @	.19½
Graphite, flake (bbl.)	lb.	.14 @	.25
powdered (bbl.)	lb.	.05 @	.10
Green, chrome, R. M.	lb.	.35 @	.40
Ground glass (fine)	lb.	.03½ @	.04
Hexamethylene	lb.	.90 @	1.00
Infusorial earth, powd'd.	lb.	.02 @	.035
bolted	lb.	.035 @	—
Iron oxide, red, reduced grades	lb.	.07 @	.08
red, pure, bright	lb.	.15 @	.20
Lead, red, dry (casks)	lb.	.10½ @	.10½
sublimed	lb.	.09¼ @	.09¾
white, basic carb.	lb.	.09 @	.09½
white, basic sulp.	lb.	.08¼ @	.08½
Lime flour	lb.	.01¾ @	.02
Litharge (casks)	lb.	.09¾ @	.10½
English	lb.	*.12 @	.13
Lithopone, domestic, bbls.	lb.	.07 @	—
in bags	lb.	.06⅞ @	—
Magnesia, carbonate	lb.	.12½ @	.13½
calcined, heavy	lb.	.12 @	.14
calcined light	lb.	.65 @	.75
Magnesite, calcined, pwd.	ton	65.00 @	—
Mica, powdered	lb.	.04¾ @	.05
Mineral rubber (asphaltum base)	ton	80.00 @	115.00
Naphtha, motor gasoline, (steel bbls.)	gal.	.23½ @	—
68 @ 70 degrees (steel bbls.)	gal.	.30½ @	—
70 @ 72 degrees (steel bbls.)	gal.	.31½ @	—
73 @ 76 degrees (steel bbls.)	gal.	.33½ @	—
machine (wood bbls.)	gal.	.36½ @	—
Oil corn, crude	lb.	.25 @	.25½
corn, refined	lb.	.28 @	.28½
linseed (bbls.) spot		2.28 @	—
linseed (bbls.) Nov.-Dec.		2.15 @	—
Jan.-June		1.98 @	—
in carloads		2.22 @	—
tank cars		2.17 @	—
Oil palm, Lagos	lb.	.18½ @	—
Niger		.16 @	.16¼
pine, yellow	gal.	.79 @	—
rapeseed, refined	gal.	1.50 @	1.55
rapeseed, blown	gal.	1.60 @	1.65
rosin, first rectified.	gal.	.93 @	—
second run		.97 @	—
tar (commercial)	gal.	.40 @	.41
Orange mineral, American.	lb.	.13¼ @	.14¼
imported	lb.	.15 @	.20
Paraphenylenediamine	lb.	2.75 @	3.00
Petrolatum, bbls., amber.	lb.	.07½ @	.08
pale yellow	lb.	.06 @	.07
Pine tar kiln	bbl.	12.00 @	12.50
Pitch	bbl.	8.00 @	8.25
Plaster of paris	bbl.	2.00 @	3.00
Red Tuscan	lb.	.22 @	.30
Indian (reduced)	lb.	.14 @	.16
Standard	lb.	.12 @	.16
Rosin (common to good)—280 lbs.	bbl.	18.15 @	—
Rotten stone, powdered.	lb.	.02½ @	.04½
Rubber, substitute, black.	lb.	.13 @	.17
white	lb.	.15 @	.24
brown	lb.	.20 @	.25
Shellac, fine orange	lb.	— @	—
T. N.	lb.	.85 @	—
Bleached ordinary	lb.	.85 @	—
Bleached bonedry	lb.	1.30 @	1.35
Silex (silica)	ton	22.00 @	40.00
Soapstone, powdered	ton	12.00 @	17.50
Starch, corn, powd.	cwt.	6.50 @	6.75
pearl		6.50 @	6.75
Jap. potato	lb.	.09¾ @	.10¾
Sulphur, crude	ton	*50.00 @	—
100 pounds		3.20 @	4.25
roll		2.70 @	3.15
commercial superfine		2.50 @	—
Talc, American	ton	20.00 @	40.00
French	ton	*30.00 @	35.00
Toluol, pure, in drums.	gal.	.25 @	.30
commercial		.22 @	.27
Tripolite earth	lb.	.01½ @	—
Turpentine, pure gum—spirits	gal.	1.48 @	—
wood	gal.	1.40 @	—

Venice, artificial .....gal.	.14	@	.15
true	4.50	@	—
Vermilion, English .....lb.	1.60	@	—
American	.25	@	.30
Wax, beeswax, crude yel.lb.	.44	@	.45
refined	.48	@	.49
Baybury	.50	@	.53
ceresin, white .....lb.	.16	@	.18
yellow	.15	@	.17
carnauba, No. 3....lb.	.55	@	.56
Montan, crude ....lb.	.35	@	.36
ozokerite, black.....lb.	*.60	@	.61
ozokerite, green.....lb.	Nominal		
candelilla	.32	@	.33
Wax, Paraffin, refined, 118/120 M. P. (bbls.).lb.	.07	@	.08
Paraffin, 125/127 M. P. .....lb.	.08	@	.08½
Wax, Paraffin, 128/130 M. P. .....lb.	.08¾	@	.09
133/135 M.P.....lb.	.10½	@	.11
Crude, 120/122M.P.lb.	.07¾	@	.08
124/126 M.P.....lb.	.10½	@	.10¾
Whiting, commercial...cwt.	1.15	@	1.20
Alba .....cwt.	1.25	@	—
Paris, white, American .....cwt.	1.50	@	—
English cliffstone.cwt.	1.75	@	2.50
Yellow chrome C. P....lb.	.24	@	—
†Zinc oxide, States Brand.	.10	@	—
horsehead brand....lb.	†.10	@	.10¼
Zinc—selected .....lb.	†.09½	@	—
"XX red".....lb.	†.09	@	—
French process, green seal .....lb.	†.10½	@	—
red seal.....lb.	†.09¼	@	—
white seal.....lb.	†.11½	@	—
substitutes .....ton	35.00	@	40.00
sulphate, pure.....lb.	*.04	@	.04¼

* Nominal. † Contract prices.

Crude Rubber

NEW YORK, August 5, 1919.

The general trend of the market has been downward during the past fortnight, although prices have shown little appreciable change. Demand is generally quiet, with manufacturers in no way inclined to anticipate their requirements. Speculators are the main buyers in the market at the present time, the regular trade coming in only infrequently, and then only for small quantities sufficient to fill their current needs.

An accurate diagnosis of the market was made by a leading importer a few days ago when he said: "Many of the people who are speculating in rubber have absolutely no reason for their acts. I am a bull on the market so far as market bullishness is concerned, but many who know nothing at all about rubber are buying because it looks cheap and because it formerly sold at higher prices than those now prevailing. One inquiry, for instance, was from a man in the Middle West, engaged in the real estate business. Outsiders overestimate the importance of the rubber used in the tire industry. They overlook the fact that cotton fabric is one of the principal materials and that supplies of this material, as well as the labor question, will settle the problem of the production of tires for the coming year without rubber playing a part of much importance."

	Cents per pound.		
Para—Up-river fine	54½	@	....
Up-river medium	52	@	....
Up-river coarse	31½	@	32
Caucho ball	33	@	....
Islands fine	48	@	....
Islands coarse	21½	@	....
Cameta	22½	@	....
Madeira fine	62	@	....
Knapsack	73	@	....
Ceylons—Smoked sheets, ribbed.	39	@	40
Smoked sheets, plain.....	38	@	39
First latex pale crepe	40½	@	41
Amber crepe	Nominal.		
Clean brown crepe.....	54	@	....
Rio Nunez string.....	55	@	....
Palembang	14	@	....
African	33	@	....
Prime Surinam sheets.....	1.02½	@	....
Centrals—Corinto prime	34	@	....
Esmeralda, prime	34	@	....
Mexican scrap.....	25	@	....
Balata sheets.....	57	@	....
Guayule, wet	25	@	....
Balata, block	57	@	....

Scrap Rubber

NEW YORK, August 5, 1919.

After a slight rise in the export demand for tire tubes business has turned quiet. Despite the rather firmer tone in the market for crude rubber, reclaimers find it to their advantage to purchase the virgin product rather than the scrap material. Dealers still harbor great hopes of the foreign demand expanding when credit barriers are overcome. England has lifted its prohibition against importations of scrap, and German interests are reported to have been about the market for the purpose of surveying conditions. Prices remain low.

The following are averages of dealers' sales prices in New York:

Boots and shoes.....	7.00	@	7.15
Arctics, trimmed	5.00	@	5.50
Arctics, untrimmed	4.25	@	4.75
Tires—Automobile	3.50	@	4.00
Bicycles, pneumatic	2.25	@	2.50
Mixed hose	1.00	@	1.25
Air brake	2.50	@	2.75
Inner tubes, No. 1.....	18.75	@	19.50
Inner tubes, No. 2.....	9.00	@	9.50

Among the Dealers

W. E. Cady & Son, Corry, Pa., have opened a tire repair and vulcanizing shop in connection with their Central Garage. William Van Vleet is in charge of this department.

Gaston Gross, formerly manager of the tire department of the Union Tire Company, Pittsburgh, Pa., has opened a store at 212 Wood Street, that city, under the name of Union Auto Supply Company. George Rees has charge of sales.

The Steel City Tire Company, Pittsburgh, Pa., has added a new store to its chain by opening up in Youngstown, Ohio, under the management of J. J. Barr.

The Packard Tire Repair Company has started business in Pittsburg, Kan. It will handle tires and do vulcanizing and repair work.

The Midwest Tire & Sales Company, Quincy, Ill., will operate a branch in Hannibal, Mo., under the management of W. A. Jackson.

The Montana Auto & Garage Company, Butte, Mont., has opened salesrooms and will carry a $50,000 stock of Firestone tires.

The Lincoln Tire & Rubber Company, Detroit, Mich., distributor for Meyer, Portage and Mohawk tires, is expanding rapidly and has leased the building at 224 Jefferson Avenue in addition to its original quarters at 226 Jefferson. The two places will be thrown together and converted into one establishment.

The Mox Tire Company, with headquarters at Second and Monroe Streets, Memphis, Tenn., has been organized to deal in factory seconds in tires and tubes. Samuel Shilfer of Philadelphia, Pa., is the manager of the company.

The Columbia Tire Sales Company, Youngstown, Ohio, a newly organized concern with Lloyd Van Epps as general manager, will occupy room at Market and McKinnie Streets, Youngstown.

A tire vulcanizing and repair shop is being opened at Walnut Street, Martins Ferry, Ohio, by Ralph & Lemmon.

The Camel Tire Company, Toledo, Ohio, is opening a chain of branch stores, the first of which will be in South Bend, Ind. A. T. Fitzpatrick, who has charge of the opening and organizing of these stores, has already secured locations in Springfield, Dayton and Columbus, in Ohio; Jackson, Lansing and Battle Creek, in Michigan; Fort Wayne and South Bend, in Indiana. Mr. Fitzpatrick has been in the tire business for ten years.

The Victor Tire Company, Columbus, Ohio, will soon open for business under the management of Lew W. Phillips and F. C. Parkinson. Mr. Phillips was formerly connected with the Kelly-Springfield Tire Company, New York City, and Springfield, Ohio, and Mr. Parkinson with the Victor Rubber Company, Springfield, Ohio. The new firm will handle Victor-Springfield tires, which are a product of the Victor Rubber Company, Springfield, Ohio.

The trade name of Standard Tire Sales Company has been adopted by Mandel Goldwater, who has opened tire sales rooms at 2157 Broadway, Oakland, Cal., specializing in factory seconds and surplus stocks.

The Beadless Tire Service Company has opened salesrooms and a service station at 234 Van Ness Avenue, San Francisco, Cal., with H. P. Larsen as manager.

The Atlantic Tire Service Company, Atlantic, Iowa, has taken over the business of the Jones Rubber Company.

The General Tire & Rubber Company, Akron, Ohio, has opened a direct factory branch at 2109 Commerce Street, Akron, Ohio.

A tire and accessory store has been opened at 320 East Capitol Avenue, Springfeld, Ill., by F. W. Leland, who will distribute "Horseshoe" tires in seven counties of Central Illinois.

The Racine Auto Tire Sales Company, Milwaukee, Wis., has been incorporated with a capital stock of $25,000 to deal in tires, supplies, and to do tire repair work. The new company will specialize in the products of the Racine Auto Tire Company, Racine, Wis. W. H. Bosworth, who has been representative of the Racine Auto Tire Company in Milwaukee for several years, is the principal in the new corporation. The business is located at 140 Oneida Avenue.

The Premier Tire & Rubber Company, Milwaukee, Wis., has been organized to deal in tires, tubes, accessories and supplies, and has opened headquarters at 462 Jefferson Street, that city. The concern will specialize in Knight and Blackstone tires.

The Independent Tire Company, Columbus, Ohio, distributors of Knight, Blackstone and Clingstone tires, and agent for Goodrich and Silvertown cord tires, has increased its floor space.

A tire and accessory shop has been opened at 131 Summers Street, Charlestown, W. Va., by the Charlestown Cut-Rate Tire & Accessory Co.

The John D. Rommel Company, 914 South Third Street, Louisville, Ky., has secured the agency for Fisk tires and inner tubes.

Jenkins & Lampson have opened a store and vulcanizing shop at the northeast corner of Seventh Street and Broadway, Louisville, Ky.

American Rubber Patents

ISSUED JULY 15, 1919.

1,309,687—Isaac Benjamin Jefferies, Llanelly, Wales. Air tube for pneumatic tires and process of manufacturing the same.

1,309,751—Lee V. Annable, Cleveland, Ohio, assignor to The Standard Parts Company, Cleveland, Ohio. Vehicle wheel rim.

1,309,795—Robert A. Campbell, Minneapolis, Minn. Tire stem cap.

1,309,839—George W. Bowman, Palisades, Colo., assignor to The Universal Spring Wheel & Manufacturing Co., Palisades, Colo. Spring wheel.

1,309,845—Oliver C. Dennis, Chicago, Ill. Electric vulcanizer.

1,309,894—Karl B. Kilborn, Akron, Ohio, assignor to The Goodyear Tire & Rubber Co., Akron, Ohio. Treading machine.

George A. Moll, Olathe, Kan. Demountable rim for wheels.

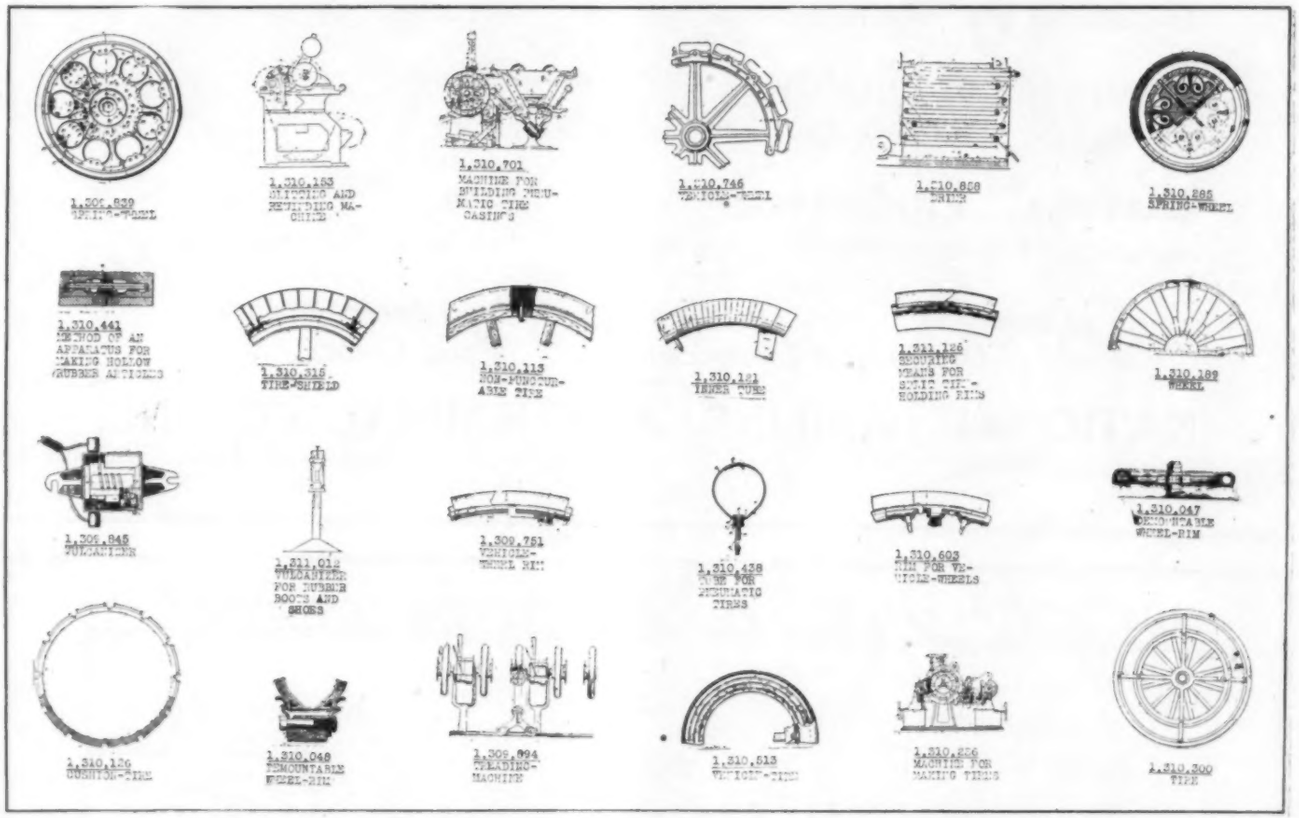
1,310,436—Fred Thomas Roberts, Cleveland, Ohio, assignor to The Paramount Rubber Company, Cleveland, Ohio. Process of making tubes for pneumatic tires.

ISSUED JULY 22, 1919

1,310,437—Fred Thomas Roberts, Cleveland, Ohio, assignor to The Paramount Rubber Company, Cleveland, Ohio. Process of making inflatable rubber articles.

1,310,438—Fred Thomas Roberts, Cleveland, Ohio. Tube for pneumatic tires.

1,310,439—Fred Thomas Roberts, Cleveland Heights, Ohio, assignor to The Paramount Rubber Company, Cleveland, Ohio. Method and Apparatus for making hollow rubber articles.



1,310,047—Erle King Baker, Chicago, Ill., assignor to Universal Rim Company, Chicago, Ill. Demountable wheel rim.

1,310,048—Erle King Baker, Chicago, Ill., assignor to Universal Rim Company, Chicago, Ill. Demountable wheel rim and complementary wheel.

1,310,113—Harry H. Culmer, Chicago, Ill. Non-puncturable tire.

1,310,121—George Allen Lane, Perris, Cal. Inner tube.

1,310,126—David S. McGerren, Quenemo, Kan. Cushion tire.

1,310,153—James A. Cameron and Gustaf Birger Birch, Brooklyn, N. Y., assignors to Cameron Machine Company, Brooklyn, N. Y. Slitting and rewinding machine.

1,310,171—Fred Altergott, Jr., Kansas City, Mo. Fastening device for tire chains.

1,310,189—Russell Hoopes, West Chester, Pa. Wheel.

1,310,212—Harry King Raymond and Irvin R. Renner, Akron, Ohio, assignors to The B. F. Goodrich Company, New York, N. Y. Bead core for pneumatic tires.

1,310,236—John R. Gammeter, Akron, Ohio, assignors to Mesne assignments, to The B. F. Goodrich Company. Machine for making tires.

1,310,285—Bernard Charles Fisher, Jersey City Heights, N. J. Spring wheel.

1,310,300—Hugh H. Schramm, New York, N. Y. Tire.

1,310,303—Howard E. Simmons and Paul R. Simmons, Huntington, Ind. Automobile or truck wheel.

1,310,315—Wesley E. Wenner, Stone Church, Pa. Tire shield.

1,310,364—Chester De Clinton Moll and George A. Moll, Olathe, Kan. Demountable rim for wheels.

1,310,436—Fred Thomas Roberts, Cleveland, Ohio, assignor to The Paramount Rubber Company, Cleveland, Ohio. Process of making tubes for pneumatic tires.

1,310,437—Fred Thomas Roberts, Cleveland, Ohio, assignor to The Paramount Rubber Company, Cleveland, Ohio. Process of making inflatable rubber articles.

1,310,438—Fred Thomas Roberts, Cleveland, Ohio. Tube for pneumatic tires.

1,310,439—Fred Thomas Roberts, Cleveland Heights, Ohio, assignor to The Paramount Rubber Company, Cleveland, Ohio. Method and Apparatus for making hollow rubber articles.

1,310,440—Fred Thomas Roberts, Cleveland, Ohio, assignor to The Paramount Rubber Company, Cleveland, Ohio. Method of an apparatus for making hollow rubber articles.

1,310,441—Fred Thomas Roberts, Cleveland, Ohio, assignor to The Paramount Rubber Company, Cleveland, Ohio. Method of an apparatus for making hollow rubber articles.

1,310,442—Fred Thomas Roberts, Cleveland, Ohio, assignor to The Paramount Rubber Company, Cleveland, Ohio. Process and apparatus for making hollow rubber articles.

1,310,513—Eli J. Taylor, Edmonton Alberta, Canada. Vehicle tire.

1,310,536—William H. Krug, Oshkosh, Wis. Anti-skid device for vehicles.

1,310,603—Richard S. Bryant, Cleveland, Ohio, assignor, by mesne assignments, to The Standard Parts Company, Cleveland, Ohio. Rim for vehicle wheels.

1,310,701—Ernest Hopkinson, New York, N. Y. Machine for building pneumatic tire casings.

1,310,746—Herbert L. Firestone, Akron, Ohio. Vehicle wheel.

1,310,858—James C. Dozier, Baton Rouge, La. Drier.

1,311,012—Frank B. Ross, Cape Girardeau, Mo. Vulcanizer for rubber boots and shoes.

1,311,121—Emil Haefely, Basel, Switzerland. Manufacturing of insulating fibrous webs for electric insulation purposes.

1,311,126—John Kelsey, Detroit, Mich., assignor to Kelsey Wheel Co., Inc., Detroit, Mich. Securing means for split tire holding rims.

Seiberling for Presidency A. A. C. of W.

The members of the St. Paul Town Crier's Club, dominated by the belief that the president of the A. A. C. of W. should be a big business man, have started a campaign which seeks to make Frank A. Seiberling, president of the Goodyear Tire & Rubber Co., Akron, O., the head of the associated clubs.

The movement had its inception after the members of the St. Paul advertising club had been informed that W. C. D'Arcy, president, had definitely indicated that he would not accept another term.

Although the members of the St. Paul club have no idea whether Mr. Seiberling will accept, they are urging his candidacy not only on the issue of the position which he holds in the business world, but also on the fact that he and his company have long given active co-operation to the work of the association.

Copies of the resolution adopted by the club have been sent to all advertising clubs with the request that each club resolve to support the movement.

The resolution which the St. Paul club has adopted reads:

WHEREAS the news has come to us that after the magnificent accomplishments of the past two years, President William C. D'Arcy feels that he cannot allow himself to be considered for a third term, and,

WHEREAS the advertising men of our acquaintance are determined that in the light of great progress recently made the Associated Advertising Clubs of the World must become still stronger factors in commerce, and,

WHEREAS the first need is for a successor to President D'Arcy, who will fearlessly and competently represent us in the ranks of business leadership, BE IT THEREFORE

Resolved, That the Town Crier's Club of St. Paul nominate for President of the Associated Advertising Clubs of the World, to be elected at New Orleans, Mr. Frank A. Seiberling, President of the Goodyear Tire & Rubber Company, of Akron, Ohio, with the hope that Mr. Seiberling will recognize this opportunity for great service to business as well as the consuming public.

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